THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING

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Net risks pay off for Hyatt Hotels, state of Iowa

"If everyone is thinking alike, then somebody isn't thinking."

The winners of Network World's 10th Annual User Excellence Awards have taken Gen. George

Patton's insight to heart. Hyatt Hotels Excellence

Corp. and the state of Iowa are prime examples of networked organizations that think outside the confines of the box.

Both are risk takers that dared to be different for business' sake and for the benefit of customers. In the case of Hyatt Hotels, the company ditched an IBM mainframe environment for a Unix distributed processing net at a time when Unix was little more than a novelty from aca-

And the state of Iowa, led by Gov. Terry Branstad, managed to handle a political hot potato and

outlast a pack of special interests who tried to derail a staterun high-speed network that now serves as a model for other states and the federal government.

NW salutes the cowinners, and a handful of honorable mentions, for daring to be different and technology to further

Hyatt's Mark Lohman (bottom) and Glen Holloway ensure data for using network delivery.

their strategic business objectives.

User Excellence coverage begins on page 56.

Microsoft retreats from DMTF spec

BY JIM DUFFY

Santa Clara, Calif.

Microsoft Corp. appears ready to drive a stake through the heart of standards-based desktop management by using its own technology for managing the Windows 95 operating system instead of fully adopting specifications from the Desktop Management Task Force (DMTF).

Microsoft wants to use its own application program interface (API) for allowing managed objects on Windows 95 workstations to receive and respond to requests from management applications. This plan flies in the face of the DMTF effort to define common, industry-accepted standards for enabling desktop systems to interact with management applications.

The danger, according to the DMTF, is that Microsoft will have different methods for accessing desktop management data than other vendors, and that the data format

may be different from what's agreed on by DMTF members. Moreover, Microsoft's methods may require different management tools offering different func-

tionality than those that comply fully with the DMTF specs.

''It starts to fragment our goals of having the same technology across [multivendor] platforms, having one standard instead of different APIs," said Shannon Gray-Voigt, DMTF chairwoman. Gray-Voigt said it will also hinder interoperability between Microsoft's management products and those from other vendors.

Microsoft is a founding member of the

DMTF and is on the organization's steering committee.

The firm plans to adopt the DMTF's Management Interface, which allows DMTF-compliant man-

agement applications to obtain management information from products within a desktop system, said Rich Barth, Microsoft's product manager for Systems Management Server. The company will also support the DMTF's Management Information Format

See DMTF, page 84

Microsoft, Lotus battle shifting to on-line services

BY ADAM GAFFIN AND PEGGY WATT

Microsoft Corp. took the wraps off its new on-line service at Comdex/Fall '94 here last week, the same forum Lotus Development Corp. and AT&T used to flesh out details of their own on-line efforts.

Traditional rivals Microsoft and Lotus say they are targeting different audiences. But as in so many other arenas, the two could eventually end up battling it out for the hearts and dollars of the same users.

Both the Microsoft Network, initially aimed at consumers, and AT&T Network Notes, first targeted at business users, are based on their respective backers' core communications technologies — Microsoft Exchange and Lotus Notes. Both will gain Internet connectivity, and both will be widely available in mid-1995.

IT'S A MARVEL

Formally announced by Microsoft Chairman Bill Gates, the Microsoft Network — previously known by its code name Marvel - will be based on a series of Windows NT servers deployed within AT&T's public telephone network.

Microsoft and other information providers and merchants will attempt to use the platform to reach consumers by supporting a variety of on-line conferences on different topics. Microsoft, for example, will

provide information related to its line of products.

The Microsoft Network will be based on Exchange, Microsoft's nextgeneration, client/server messaging system. Exchange clients will be built into Windows 95, the next major version of desktop

Shopping with Sybase

Aug. Snaps up Gain Technology, a maker of multimedia development tools, for about \$60 million.

1994

Jan. Swallows middleware vendor Micro Decisionware for \$25 million.

Oct. Acquires

Expressway Technologies, a vendor of query accelerators.

Nov. Grabs Powersoft in a stock deal valued at roughly \$940 million.

Powersoft users mixed on merger

BYBARBCOLE AND ADAM GAFFIN

An advanced version of RMON

is in the works (page 16), along

with NetWare mgmt. tools for

Cabletron's Spectrum (page 4).

Emeryville, Calif.

Sybase, Inc. last week announced that it will spend about \$940 million to buy Powersoft Corp., a move that strengthens Sybase's client/server development tool offerings but raises questions about Powersoft's ability to continue working with other database vendors.

The acquisition creates one of the biggest client/server software companies in the industry. It also provides one-stop shopping to customers of Sybase SQL Server databases and Powersoft PowerBuilder tools.

The union is considered a good fit by Powersoft See Sybase, page 84

USER PROFILE

A real network fixer-upper

BY MICHAEL COONEY

Not every company can rip out a nationwide network, build a bigger, faster one that supports a distributed computing architecture and have it all paid for in less than a year.

But The Home Depot, Inc., a company that knows a bit about building things, did

The home improvement giant needed to revamp its net to improve response times and support a strategic technology shift calling for individual stores to handle most of their own computing resources.

So in March, it decided to tear out an X.25-based backbone and its corporatewide Scientific-Atlanta, Inc. satellite net, See Home Depot, page 84



Network builder David Ellis

See On-line, page 85

NEWSPAPER \$5.00

100

Briefs

Mark your calendar. The X.400 Application Program Interface Association last week released API specifications for plugging desktop applications into calendaring and scheduling systems. By year end, the group hopes to deliver interoperability specs that will let users of different calendaring systems exchange data.

Which is it? AT&T last Friday was expected to tell the Federal Communications Commission to reject Sprint Corp.'s global alliance with France Telecom and Deutsche Telekom because the French and German carriers still hold airtight monopolies in their countries.

Anticipating the comments, John Hoffman, Sprint's executive vice president for external affairs, told reporters in Washington, D.C. that the alliance should be approved because the European Community has set a "date certain" of Jan. 1, 1998, to open up telecommunications markets. Simultaneously, Hoffman criticized a date-certain approach for allowing regional Bell holding companies into the U.S. long-distance market, claiming that additional measures are needed to ensure local competition.

Any port in a storm. While AT&T is unhappy with Sprint's European efforts, AT&T is trying other means to force open at least the French market. Late last week, the carrier was reported to be looking to invest in the French computer concern Cie. des Machines Bull, but only in return for the French government giving Bull a license to enter the French telephone market.

It's only rock 'n' roll. The Rolling Stones were scheduled to play live on the Internet last Friday.



Using a connection developed by Thinking Pictures of New York and Sun Microsystems, Inc., about 20 minutes of the band's Dallas concert was to be picked up by the Multicasting Backbone (MBONE), an Internet service currently connecting about 1,000 workstations around the world. The MBONE-less had to console themselves with the Stones' official World-Wide Web site (http://www.stones.com), where

they could pick up snippets from their latest album, download images of the band's tongue logo and apply for an official Stones MasterCard.

Caught in the Web. Latest figures from the Internet Society and the Network Information Center at Michigan's Merit network show: World-Wide Web traffic grew from 1.6 terabytes in September to 2.1 terabytes in October — a 25% increase.

Sybase warehouse strategy. Sybase, Inc. next week is expected to announce a specialized version of its database server primed for data warehousing. The database will incorporate technology designed to speed up queries against large databases, which Sybase acquired last month from Cambridge, Mass.-based Expressway Technologies, Inc. Sources said Sybase's MDI gateways (those acquired from Micro Decisionware, Inc.) to mainframe data sources and the just-acquired Power Builder development tool will also be part of the offering.

Making too much money? Hayes Microcomputer Products, Inc. of Atlanta, the modem standard bearer, has filed for Chapter 11 protection from creditors. Dennis Hayes, chief executive officer of Hayes, said the firm took the action due to a "short-term cash shortage brought on primarily by dramatic increases of demand." Hayes said his firm's sales in fiscal 1994 totaled more than \$250 million, an all-time high for the company. Hayes said the firm will continue to take orders but will file a reorganization plan with the court soon.

I want my IBM TV. IBM and ICTV of Los Gatos, Calif., last week announced plans to work together on video-on-demand and interactive services technology for cable television and telephone companies. As part of the deal, IBM is buying a minority interest in privately held ICTV.

The two firms are already working together, along with Cox Cable Communications, on an interactive television trial in Omaha, Neb. In that trial, IBM is providing network communications equipment, software and video servers, while ICTV is supplying interactive television hardware and the software programs.

For details on how to reach us, see page 86.

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The Defense Department will add ATM services and equipment to its buying contract. Page 8.

New PacBell ISDN service could cut some users' equipment and line charges radically. Page 12.

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HP changes the face of configuration management with its new software release. Page 19.

Successful net security starts with the support of users. Page 19.

NEXT WEEK

What have you done for me lately? Intheirrush

to save time

and money, users may be overlooking a valuable strategic resource — user groups. Almost every major group is trying to stage a comeback, and we'll teli you how you can benefit.

LOCAL NETWORKS

Start-up Sentinel

Systems announces its foray into the superserver market. Page 29.

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launches a string of Internet access features for LAN users. Fage 29.



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Universal in-boxes may be in the not-too-distant future as vendors work to develop standards. Page 47.

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Network HELP

Network World tracks down answers to your questions regarding products, services, technologies or disputes with vendors. Please submit questions to Dana Thorat at (800) 622-1108, via fax at (508) 820-1103 or (508) 820-3467, via the Internet at djt@world.std.com or via CompuServe at 73244, 2673.

I am studying the security issues surrounding Novell, Inc.'s NetWare LANs and Digital Equipment Corp. mainframe environments. Does one environment provide better security than the other? Also, do you know of any federal or security agencies that have done studies on LAN security?

Steve Nguyen, Houston

John Abolins, an administrative analyst for the New Jersey Department of Environmental Protection in Trenton, replies:

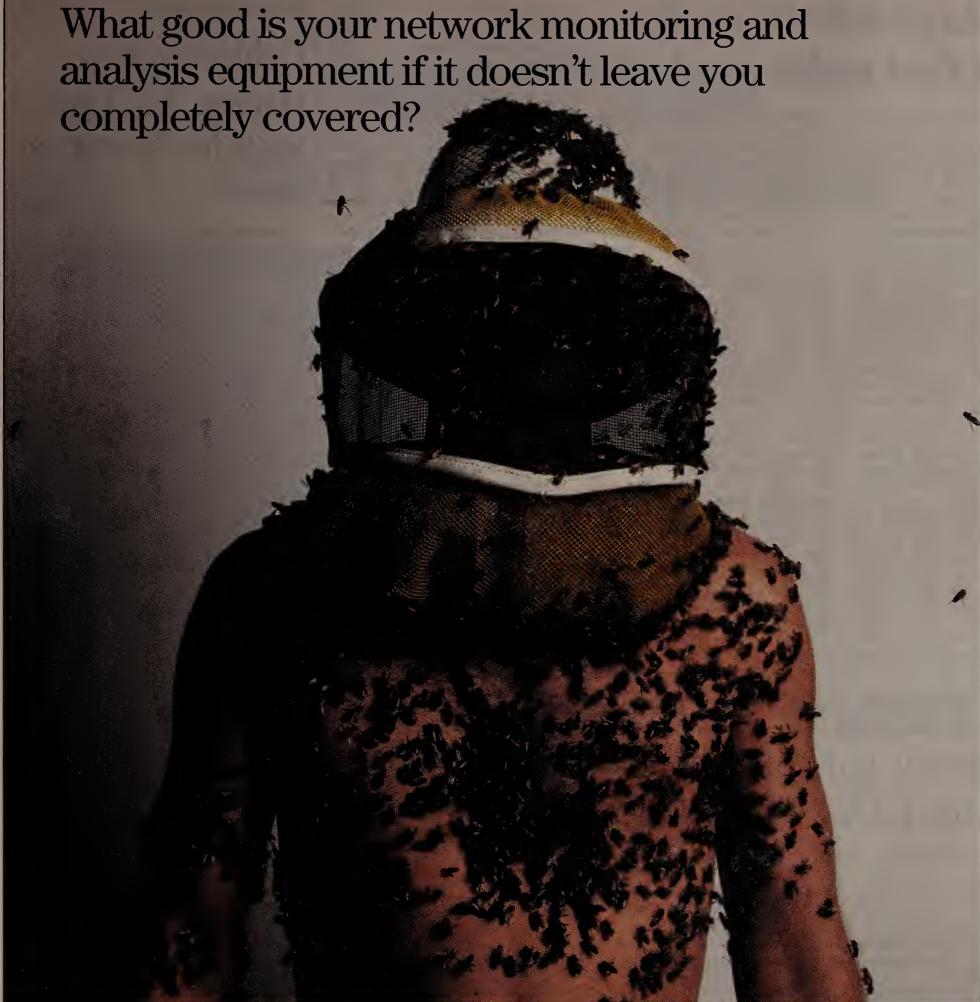
The comparison between NetWare and Digital mainframe security goes far beyond just comparing the operating systems. You really have to compare the LAN and mainframe environments and the culture that goes with each. Perhaps the most significant difference in the security between the two is not with the operating system itself but with the users and the physical handling of the equipment running the

operating systems.

The historical implementation of mainframes in offices, as opposed to PC-based LANs, has been significantly different. The substantial investments of mainframes have encouraged owners to provide fulltime MIS staffs dedicated to handling backups and security. Most LANs, however, usually rely on allpurpose administrators to run and secure them.

In addition, the facilities for the mainframe are practically constructed for the well-being of the system. Fire control, access control, air conditioning and power conditioning are all usually provided to protect the mainframe. All too often, LANs are together as though they were just a bunch of PCs connected by wires. There might not be a special protected area for the file server and other critical

Another security difference between the VMS and NetWare environments is with users' capabilities. While people can learn more, regular VMS users have to do a bit more homework than the PCbased LAN users to get past the constrained functions of VMS. There is no VMS for Dummies book out yet. However, NetWare systems, being based See Help desk, page 54



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HP monitoring and analysis solutions: The more control you have, the less painful your job will be.

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There is a better way.



BY KEVIN FOGARTY

Sunnyvale, Calif.

Novell, Inc. will release in February a new version of its LAN-to-host connectivity product, NetWare for SAA, that will add more power, better management and a wider range of connections to mainframes and IBM Application System/400 minis.

NetWare for SAA 2.0 will be part of a flurry of product releases that will follow the January release of Net Ware 4.1, a major revision of Novell's core net operating system.

NetWare for SAA 2.0 has been in beta test for about five months and was actually slated for release before the end of the year, said Michale Ober, product-line manager for the Novell Systems Group. The release was delayed to coincide with new releases of UnixWare and other Novell products.

NetWare for SAA 2.0 will be the first major revamp of the 4-year-old product, which is facing hot competition from Microsoft Corp.'s SNA Server. Novell and Microsoft have been in a sniping match about a product comparison commissioned by Microsoft that favored SNA Server.

The new features will make NetWare for SAA more powerful and hopefully help the product preserve its approximately 40% share of the LAN-to-host connectivity market, Ober said.

The new version is designed to enable users to centralize NetWare for SAA servers into data centers, rather than placing one in each LAN location.

The existing version of NetWare for SAA

users running 3270 emulation on the desktop typically use TCP/IP, IPX or SPX across the LAN. NetWare for SAA then converts

The new

features will

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the product

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the LAN-to-host

connectivity

data packets to IBM's System Network Architecture protocols for transmission across the wide area to the mainframe.

That model is too slow and limits user choices on transmission protocols across the WAN, Ober said. The new version will help customers to reduce the use of SNA protocols across the WAN by employing the TN3270 protocol, which supports the traffic across TCP/IP, IPX and SPX.

Using TN3270 and TCP/IP across the WAN will let desktops communicate with remote

NetWare for SAA servers, eliminating the need to keep remote servers.

SESSIONS SUPPORT

But customers would still have to maintain the same number of servers, which is a drawback, Ober said. So NetWare for SAA 2.0 will support more concurrent sessions than the existing product -2,000 compared to 500 -- letting customers use fewer higher capacity servers, he said.

The new version will also include a Microsoft Windows-based utility that will let users configure NetWare for SAA systems. It will integrate with NetWare 4.1's security and NetWare Directory Services, so

network administrators can assign privileges using existing group and individual configuration files, Ober said.

The utility will allow users to graphically assign resources to segments or logical divisions of the network by clicking on icons of servers, pools of sessions assigned to groups of users and other common management tasks that had to be handled using a text-

> based interface in previous versions, Ober said.

A hot standby option will designate one server as a backup for a number of others. In theory, the standby could monitor any number of servers, but the practical limit is probably between 20 and 40, Ober said.

There will be a form of hot standby on NetWare for SAA networks connecting to IBM AS/400s, but network managers will have to include a pathway to the backup server in client configuration files, said

Daniel Arra, product manager of IBM connectivity for Novell.

NetWare for SAA 2.0 improves AS/400 desktop connectivity with a Windows-based AS/400 Router, designed to replace the PC support IBM supplies to let clients talk to an AS/400 using SNA protocols.

The Windows AS/400 Router will direct network traffic across TCP/IP, IPX or SPX to a NetWare for SAA server, and via SNA proto cols to the AS/400.

The router will improve performance and reliability by running as a Microsoft Dynamic Link Library in Windows, rather than as a terminate-and-stay-resident program in DOS, Ober said.

ProShare pricing

ISDN upgrade \$499

* Current Video System 200 users get

** Price given is when purchased from

a Bell operating company supplier; as much as \$2,400 elsewhere.

LANDesk Personal Conferencing

System 150 upgrade for free.

ISDN-based ProShare Video

LAN-based ProShare Video

ENTERPRISE MGMT.

Cabletron set to release NetWare tools for Spectrum

BY JODI COHEN

Cabletron Systems, Inc. is prepping tools that will give its Spectrum management platform near-total control over Novell, Inc. NetWare servers.

At a user workshop here, the company detailed its Management Gateway Server for NetWare, a product that lets users perform accounting, file and account management functions on distributed NetWare servers from a central Spectrum console.

It comprises a software module that runs on top of the PC Media Interface Module, which resides in Cabletron Multi Media Access Center hubs, and shuttles data between Spectrum and attached NetWare servers. Multiple gateways can be used to provide redundancy in case one fails.

A key component of the management gateway is the Spectrum Management Application, software that lets users monitor and control servers from Spectrum's graphical interface.

The application enables users to create and modify individual and group accounts, and determine disk space usage and availability on remote servers. They can also disable connections to the server, disconnect a specific user and shut down a server.

The NetWare Management Application will support NetWare's accounting services, enabling systems managers to charge back user and group accounts. It also includes basic file system management features, including copy, delete, edit and move functions.

Alarms that are sent from the servers are rolled up into Spectrum, allowing for alarm notifications and trouble ticketing. And an IPX AutoDiscovery feature will automatically locate and add NetWare resources to Spectrum's net topology map.

The gateway server collects management data from Spectrum NetWare Management Agents, which consist of software residing on Novell servers.

Cabletron's use of its own agents instead of Novell's NetWare Management System agents amounts to a duplication of efforts and not true integration, said Jamie Lewis, an analyst with The Burton Group in Salt Lake City.

"One problem with management these days is everybody wants to own everything all the way down to the agent architecture," he said.

But according to Cabletron Eengineer Gene Dragotta, Novell is currently evaluating Management Gateway Server to handle its internal networks.

"Novell would be the ultimate Management Gateway Server client," he said.

The Management Gateway supports NetWare servers running on platforms including Sun Microsystems, Inc.'s SunOS and Solaris, Hewlett-Packard Co.'s HP-UX and IBM's AIX. It will also support Net-Ware Versions 4.01, 3.12, 3.11 and 2.2.

Pricing has not yet been set. The product is scheduled to go into beta test next month.

Mark Truhlar, director of network management software at Cabletron, said his company is talking with Lotus Development Corp. to develop similar management products for cc: Mail and Lotus Notes.

The firm is also readying its Automated Connection Management Services tool, which provides management of switched nets (NW, Dec. 13, 1993, page 1). It is scheduled to go into beta test in early 1995.

Also, the company said Spectrum will soon be ported to two new platforms, Windows NT and HP-UX, with beta tests scheduled to begin next month.

©Cabletron: (603) 332-9400.

Intel unveils packet video system for LANs, WANs

Package gets high marks, but concerns remain.

BY ELLEN MESSMER

Las Vegas

Intel Corp. last week introduced a packet-based desktop videoconferencing and data collaboration system that works over both LANs and WANs.

Announced at the Comdex/Fall '94 show last week and now shipping, the ProShare Video System 150 comes as a hardware/software package for Windows-based personal computers. It works on Ethernet or tokenring LANs and WANs supporting TCP/IP, Network Basic I/O System or IPX.

Additionally, Intel said it will add the same packet-video support to its earlier product, the ProShare Video System 200, which works over ISDN Basic Rate Interface lines (NW, Sept. 19, page 4).

That will create a dual-use version of the desktop system, enabling users to conference with other ProShare users over the LAN or via ISDN.

Because bandwidth consumption is a concern on the LAN, Intel is supplying a Windows-based network management application called LANDesk Personal Conferencing Manager 1.0 that allows LAN administrators to control the amount of bandwidth allocated for videoconferencing or data collaboration.

James Phillips, an Intel product manager, said allocating 2M bit/sec for 10 simultaneous conferences on a 10M- or 16M-bit LAN would be a prudent setting for LANDesk.

SATISFIED USERS

Meanwhile, beta users from Hughes Aircraft Co., NationsBank Corp. and Johnson Controls, Inc. praised the LAN-based System 150.

the picture quality," said Dave Horn, video systems specialist at Hughes Aircraft. "And it's not consuming an inordinate amount of bandwidth."

"We were really impressed with

Hughes Aircraft has run the System 150 on PCs in both low-resolution mode, which consumes about 200K bit/sec of bandwidth, and high-resolution mode, which eats up around 400K bit/sec. ProShare's picture image is a maximum one-quarter screen size.

"We're using the dual version, and it works great," said Frank Kavenik, vice president of development at NationsBank in

However, Hughes Aircraft and Johnson

\$600-range price point set by competitors PictureTel Corp. and InVision Systems, Inc. for LAN-based conferencing, but on par with InSoft Corp. " GRAPHIC BY TERRI MITCHELL

66 This puts Intel well over the

Controls have invested millions of dollars in room videoconferencing systems based on the international H.320 standard, and managers there at those firms would like to see Intel's desktop products support that set of

Elliot Gold,

president of

consultancy

TeleSpan

Publishing

But so far, the picture has not been pretty. Although Intel promised an H.320-based version of ProShare by year end, the company has moved that deadline back to firstquarter 1995.

At Johnson Controls, where Intel's H.320-based product is being beta-tested

See Intel, page 8

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show up at the office?

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Ascom Timeplex president to depart

BY MICHAEL CSENGER

Woodcliff Lake, N.J.

Ascom Timeplex, Inc., which has struggled in recent years to keep pace with its competitors in moving to new switch-based technologies, last week said its president and chief executive officer, William O'Conner, is leaving.

A company spokesman could not clarify if O'Conner decided to leave on his own, saying only that O'Conner is moving to an executive position at GTECH, an on-line lottery system provider and Timeplex customer based in West Greenwich, R.I.

According to Dedham, Mass., consultancy Vertical Systems Group, Timeplex has not turned a profit in three years. Rick Malone, a principal at Vertical Systems, said Timeplex has lacked leadership and could benefit from O'Conner's departure.

"Ascom Timeplex is a company falling apart at the seams," he said. "They've had no leadership for three years, since O'Conner was brought in. I think the Swiss [parent company, Ascom Holding] finally realized it might be healthy to make a change."

Users agreed.

"It seems nobody's been in charge over there," said Russell Fairless, network services manager for the state of Utah in Salt Lake City, which has more than 200 Timeplex routers installed.

"We've been waiting almost a year for their network management system," he said. "We have to keep growing our network and limp along while they keep changing direction and renaming the thing. So, yes, I've been concerned.''

Sources speculated that Bruce McClure, vice president in charge of developing Timeplex's Asynchronous Transfer Mode product line, is also leaving. But the company said he is not.

Sources also said the company has lost most of its key engineers and product architects over the past 12 months. The company's Synchrony switch renamed the STS-50 — is now promised for release in January, after about two years of delays. Its next-generation wide-area ATM product plans remain nebulous, with nothing promised until late 1995.

Timeplex's main rivals in the 1980's multiplexer market - Network Equipment Technologies, Inc. (NET) and Newbridge Networks, Inc. — have fared better in the evolution to packet switching. NET stum-

> bled with its ATM strategy but has since changed leadership and grown profitable this year, winning several large frame relay deals. Newbridge has forged even further ahead, with second-generation wide-area ATM switch due early next year, while its Vivid ATM LAN strategy unfolds.

There is still time for Timeplex to turn itself

around though, Malone said. He cited the company's excellent service organization and an installed base of

Utah's Fairless agreed. Despite his frustration with Timeplex's lack of product development, "I can't complain about the resources they've thrown at the problems we have here," he said. **Z**



"We're not

going to price

this as a

premium

service.

We're pricing

this as the

next logical

step from frame

relay."

BY DAVID ROHDE

US WEST, Inc. is reported to be considering a usage-based pricing scheme for Asynchronous Transfer Mode service for when the service is introduced commercially in the first quarter of

Carrier officials last week confirmed ATM will soon become commercially available in part of US

WEST's territory. They added that ATM, like frame relay, will be sold through the carrier's successful Interprise Networking Services division, which recently has been looking to team with others to offer service outside US WEST's territory.

One analyst said US WEST has been working with suppliers such as AT&T, Digital Equipment

Corp. and IBM on its billing platform in order to introduce usage-based pricing that would ease entry of new users into

By contrast, most ATM pricing set by regional Bell holding companies other than a limited set of prices issued by Southern Bell for the so-called North Carolina Information Superhighway has been based on flat rates.

"US WEST wants to have usage-sensitive charges" so new users "won't feel the pinch" of high flat rates typical of RBHC ATM pricing, said Steve Sazegari, director of telecommunications industry analysis for Ryan Hankin Kent, Inc. in South San Francisco.

But to do that, Sazegari said, "you've got to be able to count the number of cells you're delivering. The other [RBHCs] don't have the billing in place yet to do this."

US WEST would not confirm or deny this approach, but it did promise a price breakthrough when the firm begins filing ATM tariffs with state authorities and possibly the Federal Communications Commission where regional calling areas overlap state boundaries.

"We're not going to price this as a premium service," said Mark Marino, manager of ATM Cell Relay Service

marketing and product development for Interprise Networking Services. "We're pricing this as the next logical step from frame relay."

US WIST's impending announcement of commercial availability is significant because of Interprise Networking Services' prowess in selling frame relay. Well over 90% of the frame relay

installations from RBHCs are through US WEST, including state governments and midsize businesses, according to analyst reports.

However, the carrier has not settled on an ATM switch vencor. "We've got several different platforms we are testing in the lab," Marino said.

And the first users are not likely to come from a broad range of businesses. Initial customers will include laboratories and research universities.

One important issue: The carrier will not initially offer T-1 access, according to Marino. That's in contrast to Bell Atlantic, which effectively offers low-speed ATM through a scalable bandwidth pricing plan. Pacific Bell's official prices start at T-3 ATM for just under \$5,000 a month, with a higher rate — 155M bit/sec — priced at just under \$8,000 a month.

Centrex users receive CTI solution

O'CONNER

BY JOANIE WEXLER

Las Vegas

Bell Communications Research last week launched software to bring ISDN Centrex customers the desktop computer-telephone integration (CTI) benefits that have until now been available only to private branch exchange users.

Bellcore's MediaCom software will allow users of ISDN basic-rate service to run personal computerbased CTI applications that take advantage of caller information delivered across the D channel of the ISDN link. It will also let them graphically emulate the functions of their ISDN telephones on their Windows, Macintosh or OS/2 PC screens.

The initial product integrates AT&T ISDN phones with desktop computers. Incoming calls, for example, can link with a user's PC-based electronic Rolodex and display caller information on the user's monitor, explained Mike Giovia, MediaCom project manager.

The software is also being enhanced for use with other vendors' phones and ISDN terminal adapters,

See Centrex, page 8

PowerPC Alliance makes splash at Comdex

BY PEGGY WATT

The circus tent that showcased the PowerPC pavilion of products at the Comdex/Fall '94 show here also housed a cast of strange bedfellows that were eager to promote a technology that remains mostly a promise.

The PowerPC Alliance — Apple Computer, Inc., IBM and Motorola, Inc. — is diligently promoting its challenge to Intel Corp.'s Pentium chip.

IBM is running a laboratory to help Windows NT application developers port their programs to the PowerPC platform. All three players are preparing systems that support the new chip family. The chip has been licensed to vendors that are building PowerPC clones. And earlier this month a more mature implementation of the technology was announced, which will provide a common platform that supports a choice of operating systems and enhances the PowerPC's capabilities and marketability.

"It's excellent raw technology, but it's raw," said Cheryl Currid, president of Currid & Co., a Houston consulting firm. "But I want to see them give the Wintel cartel a run for its

Since very few products are shipping, the trio is promoting the PowerPC image. For example, the multimedia presentation at the

Comdex pavilion teatured a flashy video but little hard information about the chip.

and Windows applications.

PowerPC announcements at Comdex included Motorola's plans to ship in January a line of PowerPC-based Motorola-labeled systems, including servers, and Apple's demonstration of a DOS compatibility card to let its PowerMac run both Macintosh

The card will also be built into the Power-Mac 6100 DOS-compatible system scheduled to ship in the first half of 1995. But compatibil-

board; the chip that will run multiple operating systems is still more than a year from implementation in a computer.

Still, the PowerPC platform is endorsed by hundreds of software developers that have ported existing applications to run natively on the PowerPC microprocessor. Many showed their wares at Comdex.

> Even Microsoft Corp. made sure its Windows NT and popular business applications run on the PowerPC-

based systems several vendors are expected to ship next quarter. In fact, Motorola's PowerPC systems will come preloaded with Windows NT. And Microsoft said its Cairo operating system, the successor to Windows NT 3.5, will be fully portable to the PowerPC common hardware platform when it ships in 1996.

Motorola's PowerPC products, which will come from its Tempe, Ariz.-based Motorola Computer Group, are multiuser systems called the PowerStack family. They will be based on the PowerPC 603 and PowerPC 604 multiprocessors, available with Reduced Instruction Set Computing chips, and include workgroup servers, entry-level servers and desktop systems.

Apple reported it has shipped 600,000 PowerMacs since the machine's release in March. It is based on the PowerPC chip but runs only the Macintosh operating system in native mode and supports DOS and Windows with Insignia Solutions, Inc.'s SoftWindows utility.

Many industry watchers expected IBM to announce at Comdex that it was licensing the Macintosh operating system from Apple. But IBM said it would not license the operating system until the chip capable of running multiple operating systems is available in 1996.

It will be easier to implement the Macintosh on that platform than on Intel or existing PowerPC chips, said Jim Gable, Apple's product-line manager for the PovierMac. "If we license the Mac OS now, we have to license Apple hardware, too, because the OS is so entwined with the hardware."





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Newcomer to target token-ring switching

Company may extend its reach into FDDI, Ethernet and ATM worlds in the future.

BY MARGARET DORNBUSCH

Littleton, Mass.

NeTREND, Inc., a start-up founded by a former CrossComm Corp. executive, is readying a series of token-ring switching products it plans to bring to market by mid-1995.

The company, which was initially founded in July 1993 as a consulting and engineering firm for LAN, WAN



"Doing engineering projects for other networking companies has let us assemble building blocks that are now being applied to our own products."

—Bob Rosenbaum

and internetworking product vendors, plans to deliver token-ring switch modules for existing wiring hubs as well as low-end token-ring switches for remote

NeTREND may eventually deliver products based on other technologies, including Ethernet, Fiber Distributed Data Interface and Asynchronous Transfer Mode.

The firm's market direction is in line with users' demand for cost-effective tools to increase their nets' bandwidth, said Karl Shimada, vice president of research for Rising Star Research in Denver. Switched token ring could satisfy users who do not need to move to ATM right away.

More than two-thirds of the 77 large token-ring shops questioned in a recent survey by consultancy Sage Research

plan to expand their networks during the next two years. This networking climate is ideal for token-ring switching products, said Kathryn Kostokoff, a principal at Sage, based in Natick,

operations with router vendor Cross-Comm, as a turnkey product develop-

ment group for vendors such as BBN Communications and UB Networks,

The start-up made enough money doing that to fund its foray into the token-ring switching market, staving off the need to seek venture capital funding, said Bob Rosenbaum,

dent of marketing and sales. Rosenbaum previously worked for wireless LAN vendor WinData.

Rosenbaum declined to provide specifics about NeTREND's first tokenring switching product but said betatesting should begin over the next couple of months. Observers expect the switch to be introduced sometime in early spring, around the time the IEEE 802.5 committee releases the final version of its standard for 25M bit/sec token-ring switching, also known as dedicated token ring.

Targeting the lower end market sets NeTREND apart from competitors such as Centillion Networks, Inc. of Mountain View, Calif., which manufactures high-end token-ring ATM switches, said Selina Lo, Centillion's

NeTREND was started by Nick Grewal, former senior vice president of

Inc.

NeTREND's vice presi-

vice president of marketing. **∠**

"TAPI . . . is trying to do what ISDN does in a non-ISDN environment,"

Continued from page 6

Centrex

according to Giovia.

"This is a positive for Centrex customers because now Centrex can compete with PBXs for desktop CTI," said Vince Rafferty, a director with InfoTech Consulting, Inc., which is based in Gaithersburg, Md.

This is because what the user gets is similar to what several private branch exchange vendors are delivering via Microsoft Corp.'s Telephony Application Programming Interface (TAPI) for linking desktops with user PBXs.

TAPI-compliant software is available for PBXs from AT&T, Northern Telecom, Inc. and Siemens Rolm Communications Co.

Whether or not CTI software is PBX-or network-based, the intent is for the user to have control of the telephone from the PC, and then integrate PC and telephony capabilities, Rafferty said.

said Charles Meyer, a member of the Bellcore technical staff.

Users can mimic all the ISDN phone functions, such as hold, conference, forward, mute and transfer, by clicking on icons and using an on-screen keypad, MediaCom's Giovia said.

The software will also interface to analog voice messaging systems, allowing users to hide numeric prompts under, say, word labels such as "new messages" that they can click on to activate, he added.

Rafferty said MediaCom should be attractive to users, as long as they can get ISDN basic-rate service in their area. "There's where the potential problem lies. Who's going to have access?"

Bellcore will market MediaCom through the regional Bell telephone companies and resellers, who can buy 100-user licenses for \$10,000.

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Defense Dept. adds ATM to net purchasing pact

BY ELLEN MESSMER

Washington, D.C.

The Defense Department will soon be adding ATM services and equipment to the contract under which it buys everything from private lines to voice mail for sites in the capital region.

More than 150,000 military users here and in the capital's Maryland and Virginia suburbs are required to make net-related purchases from the Telecommunications Modernization Project (TEMPO) contract. TEMPO offers a wide choice of services and equipment, including analog and digital private lines, ISDN and LAN gear, as well as key and private branch exchange systems.

The 10-year TEMPO contract, awarded to Bell Atlantic Corp. in 1991, was conceived as the successor to Centrex service contracts, which expire in October.

"We now have Bell Atlantic's tariffed ATM service being added to TEMPO," said Mike Newton, director of the Defense Telecommunications Service-Washington, the Defense Department organization managing the TEMPO contract. "We'll be trialing ATM to the desktop for the Defense Department, with applications such as high-resolution imaging and videoconferencing."

Bell Atlantic is providing up to

155M bit/sec local ATM service for the federal government, said Anthony D'Agata, the carrier's vice president of military federal systems.

Bell Atlantic also expects soon to begin installing a campus network at the Pentagon based on Fore Systems, Inc.'s ATM hubs, part of a \$1.2 billion renovation of the massive building. "We'll connect it to our public network so the Pentagon can connect to a wider community," D'Agata said.

As the Pentagon undergoes its interior renovation floor by floor, Pentagon workers will have to set up some temporary quarters in office space nearby for six-month

But even then, Bell Atlantic will strive to deliver ATM — and other TEMPO services - to military personnel temporarily dislocated from their Pentagon offices. Z

Intel

Continued from page 4

along with several other proprietary and standardsbased desktop video products, the preliminary results have not been good.

"Frankly, it's awful," said Andrew Drummond, LAN manager in the Chicago automotive system group. "It's much worse than the PictureTel H.320 desktop system, and it won't interoperate well with any H.320 room system."

Drummond prefers Intel's ProShare desktop products over the comparable PictureTel products and would be content to buy ProShare if his company did not have to worry about the millions of dollars it has invested in H.320-based PictureTel room systems.

Johnson Controls is working with Intel to try and improve Intel's H.320 software-based coder/decoder

Enthusiasm for the dual-use proprietary ProShare product is so high, however, that Drummond and his LAN support team have managed to find a way to eliminate its inherent drawback: Each user needs both



Intel CEO Andrew Grove said the company has sold 6,000 ProShare systems to date.

LAN access and an ISDN BRI line to take full advantage of it.

The company jury-rigged its own LAN-to-ISDN gateway so ProShare users can now place ISDN calls via the LAN. "We didn't want to spend the extra money on a BRI line for everyone," Drummond said.

©Intel: (800) 525-3019.

Modem vendors support V.34 spec

Five vendors of modems and desktop collaboration products last week rallied around a new specification for transmitting voice and data simultaneously over a single 28.8K bit/sec line.

U.S. Robotics, Inc., Rockwell Telecommunications and Hayes Microcomputer Products, Inc., as well as desktop conferencing vendors Intel Corp. and Creative Labs, Inc., pledged to support the Digital Simultaneous Voice and Data (DSVD) specification they developed as an enhancement for V.34 modems.

The spec could be a boon for collaborative computing, making it easier for end users to work on applications simultaneously while talking over one phone line.

Few firms, however, aired specific product shipment plans. Intel, for example, said only that it would likely ship a board-level DSVDcompliant product later next year.

But U.S. Robotics said it will have a DSVD modem out by February for \$400, and Intel's ProShare data collaboration product (see story, page 4) will be bundled into the DSVD modem.

All five vendors sought to send assurances that future **DSVD** products will be interoperable.

Besides data-sharing applications, DSVD will support facsimile and file transfer, according to Thomas Potts, a spokesman at U.S. Robotics.

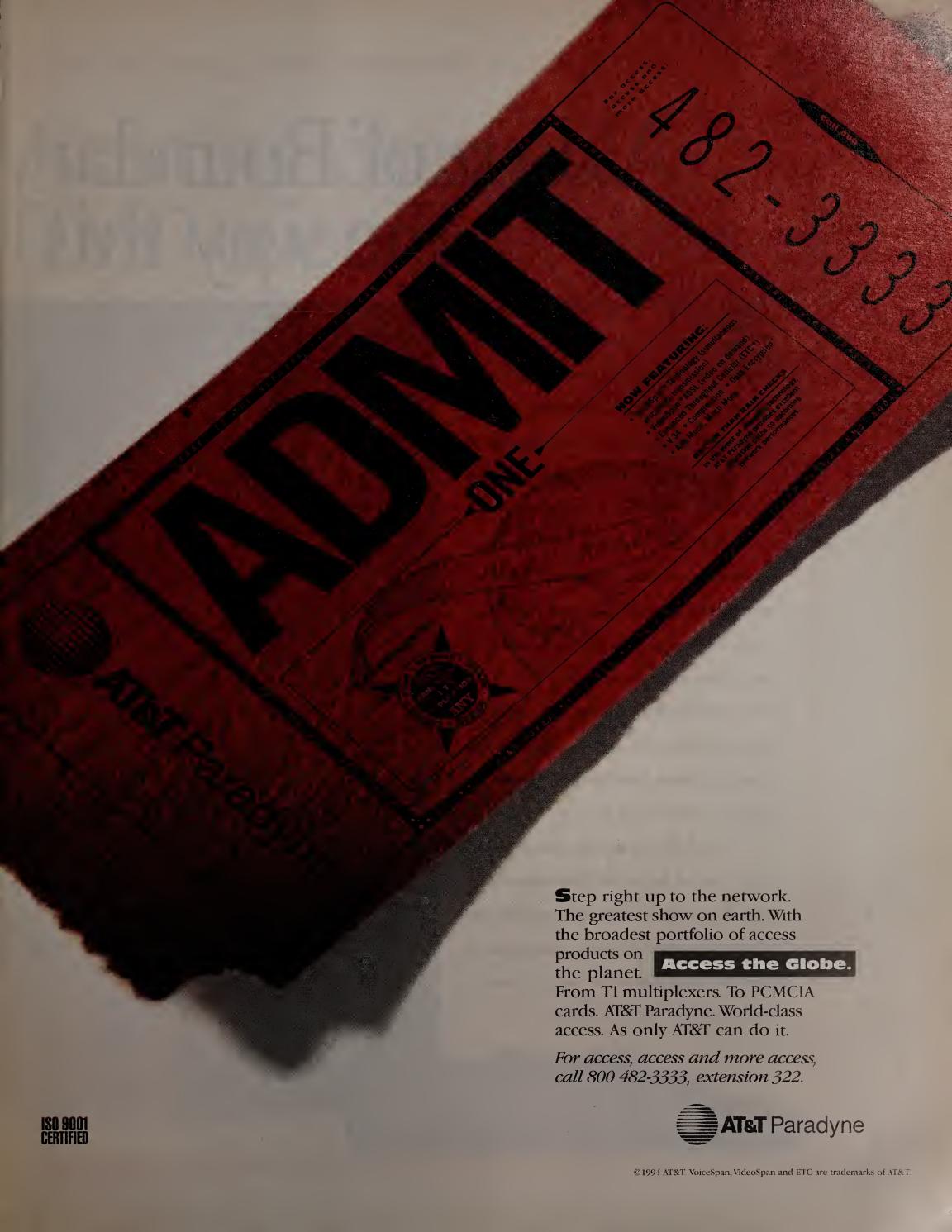
Although DSVD is seen

as a positive development, some analysts said the specification does not go far enough to meet users' long-term needs.

Ken Krechmer, a principal with Action Consulting in Palo Alto, Calif., said it would be preferable for **DSVD** to have a handshake mechanism so it could negotiate an audio and data connection with a desktop video system.

DSVD has not yet been officially entered onto the standards track. Another alternative. the Packet Media Multiplexing spec championed by Motorola, Inc., is now under review by the International Telecommunication Union, Krechmer noted.

BY ELLEN MESSMER



A dose of Boundary the way this



When you have 167,000 patients to care for, an unreliable network can leave you in critical condition. That's why

the Georgia region of Kaiser Permanente, one of the country's largest HMOs, chose an innovative system to internetwork its outpatient facilities. It's 3Com's Boundary Routing system architecture.

With 3Com's Boundary Routing technology in place, personnel at Kaiser Permanente's outlying medical facilities in Georgia now have access to their nationwide network, and important patient information.

And, since the entire Georgia network is managed and maintained from their regional offices in Atlanta, there is no need for network managers at outlying sites.

The result is a system capable of permitting members to call any Kaiser Permanente location to get lab test results or schedule appointments. What once required manually making appointments and tracking down lab reports can now be done on-screen in a matter of seconds.



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members with the highest level
of quality, and ourselves with a simple, cost-effective solution," says Amin Tejani, Kaiser Permanente
Information Systems Analyst. "Plus, our medical
offices require no network support staff."

With 3Com's Boundary Routing technology, Kaiser Permanente can enjoy all the benefits of remote office routing without the complexity.

HMOs aren't the only ones operating with the simplest and most cost-effective internetworking system. For a free video, *Plug and Play Remote Networking*, along with complete product information, call **1-800-NET-3Com**. Boundary Routing, the prescription for any network.



are trademarks of 3Com Corporation

PacBell to put multiple data devices on ISDN channels for cost savings

BY DAVID ROHDE

San Jose, Calif.

Pacific Bell next month will introduce a new ISDN service that could cut 75% off equipment and monthly line charges for certain offices and businesses.

The so-called B-channel contention service will allow as many as eight data devices to share a single ISDN Basic Rate Interface. A BRI contains two 64K bit/sec bearer channels and a 16K bit/sec signaling channel.

B-channel contention is one leg of an ISDN offensive mapped out by Pacific Bell officials at the Switched Digital Services Applications Forum here. Other planned ISDN initiatives include a toll-free 800 ISDN service that can be used for sharing documents and images in collaborative work and is similar to AT&T's pending WorldWorx 800 service. In addition, Pacific Bell officials are considering a cap on ISDN usage charges at \$100 per line per

Fueled by telecommuting and branch office LAN access, Pacific Bell's ISDN business has quadrupled this year. B-channel contention is one more way to get more users past the traditional equipment and line-charge cost barriers of ISDN, telephone company officials

The service takes advantage of the colli-

sion-detection capability of the 16K bit/sec signaling D channel.

Traditionally, users have been able to leverage that capability — similar to Ethernet's collision-detection feature — to attach multiple packet-switching data devices to the D channel, explained Christopher Brock, a Pacific Bell product manager.

But this approach requires additional CPE, such as packet assembler/disassemblers. And users have been totally unable to multiplex circuit-switched data, which - like circuitswitched voice calls - must travel over the 64K bit/sec B, or bearer, channels, Brock said.

That's because central office switches have only been able to "name" two devices for each BRI — one for each bearer channel. In a traditional ISDN setup, that would be a telephone and a data communications device for a single individual.

Now, AT&T Network Systems has provided software in its flagship 5ESS central office switch to allow the phone company to name multiple devices for each BRI, said Winton Mattison, Pacific Bell's product manager for Centrex ISDN.

No similar capability is currently available in the DMS-100 central office switch from Northern Telecom, Inc., so the service is only available where the Pacific Bell central office is

"Now it's easy to make ISDN cheaper than [plain old telephone service] lines," said Pacific Bell's Brock.

served by the AT&T 5ESS, Mattison said. ''Most of our ISDN is out of 5E," he added.

B-channel contention will be introduced next month for Centrex ISDN customers and in January for single-line ISDN customers, Mattison said. Additional devices beyond the first two will be priced at far less than the cost of an additional BRI, with no extra equipment

Other major local exchange carriers that use the AT&T equipment may take advantage of this capability, as well.

"We do believe this is a competitive advantage of the 5E switch," said an AT&T Network Systems spokesman.

According to Brock, the service is ideal for offices or facilities where many data devices are installed but individuals are either frequently out of the office, as in a real estate brokerage firm, or not on the telephone, as in a data center or computer room.

"Now it's easy to make ISDN cheaper than [plain old telephone service] lines," he said. He cautioned that the service will not support more than two simultaneous voice telephone calls, so it's best "where people just need a phone just in case." Brock added, "This whole [solution] falls apart in a telemarketing office."

Also due in the first quarter of 1995 is a digital 800 connection to switched 56K bit/sec service as well as ISDN, said Ruth Winkler, product manager for Pacific Bell's SDS 56 service at the Switched Digital Services Applications Forum.

And while Pacific Bell has removed perminute charges for home use of ISDN after 5 p.m. (NW, July 4, page 21), the carrier is considering a cap on business charges.

"We're looking at some pricing scheme for business ISDN that will put in caps, like \$100 [per month]," said Don Roe, product manager for single-line ISDN at the forum.

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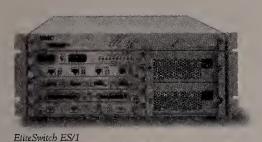


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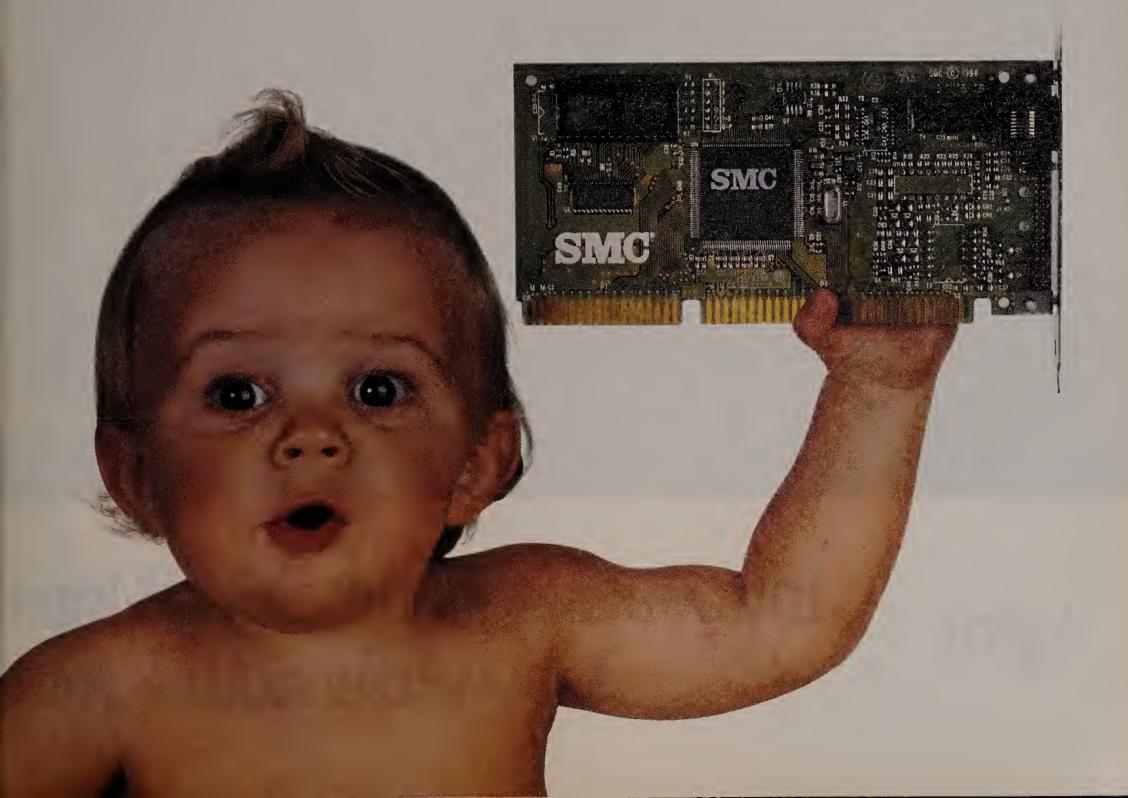
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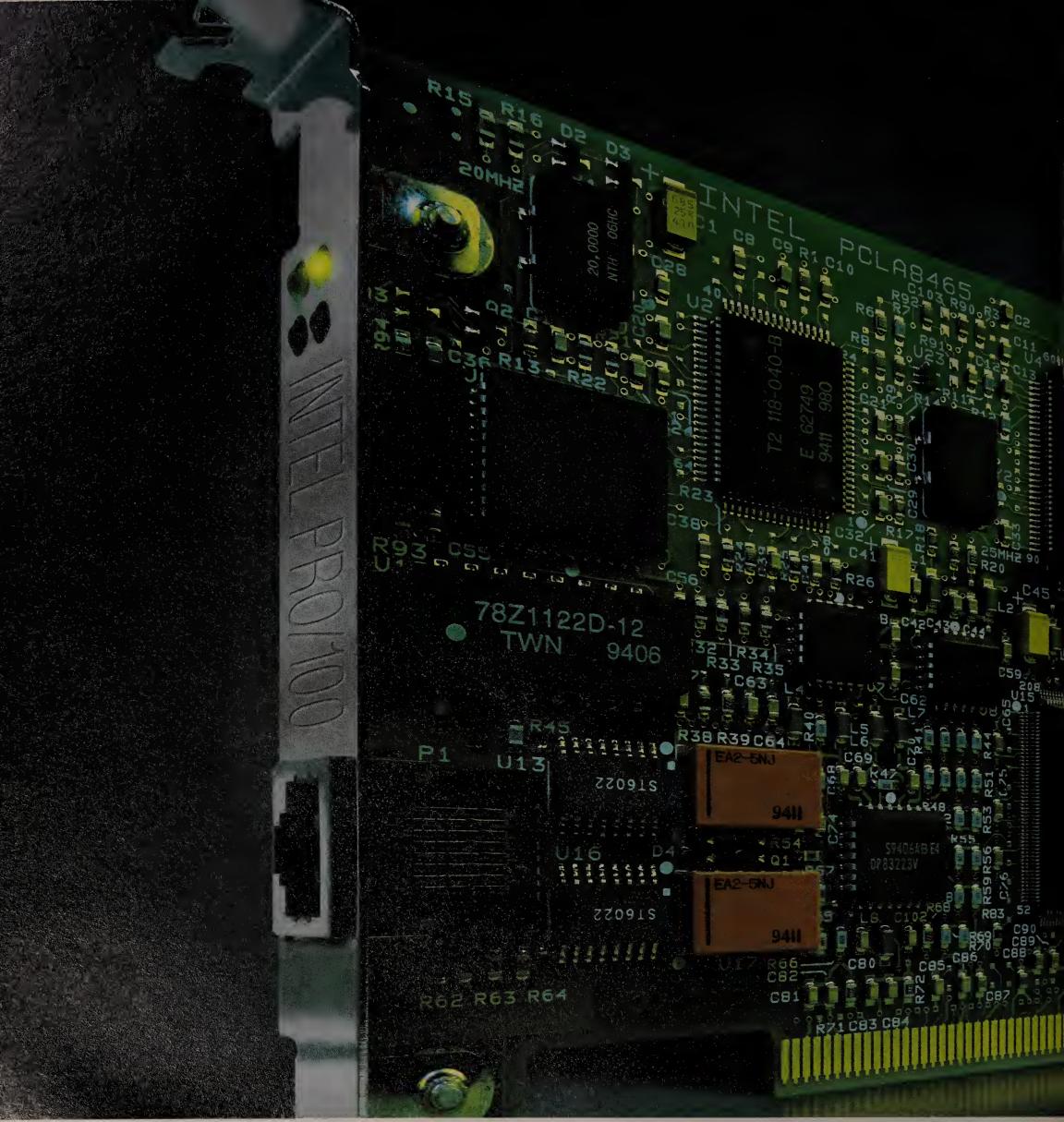
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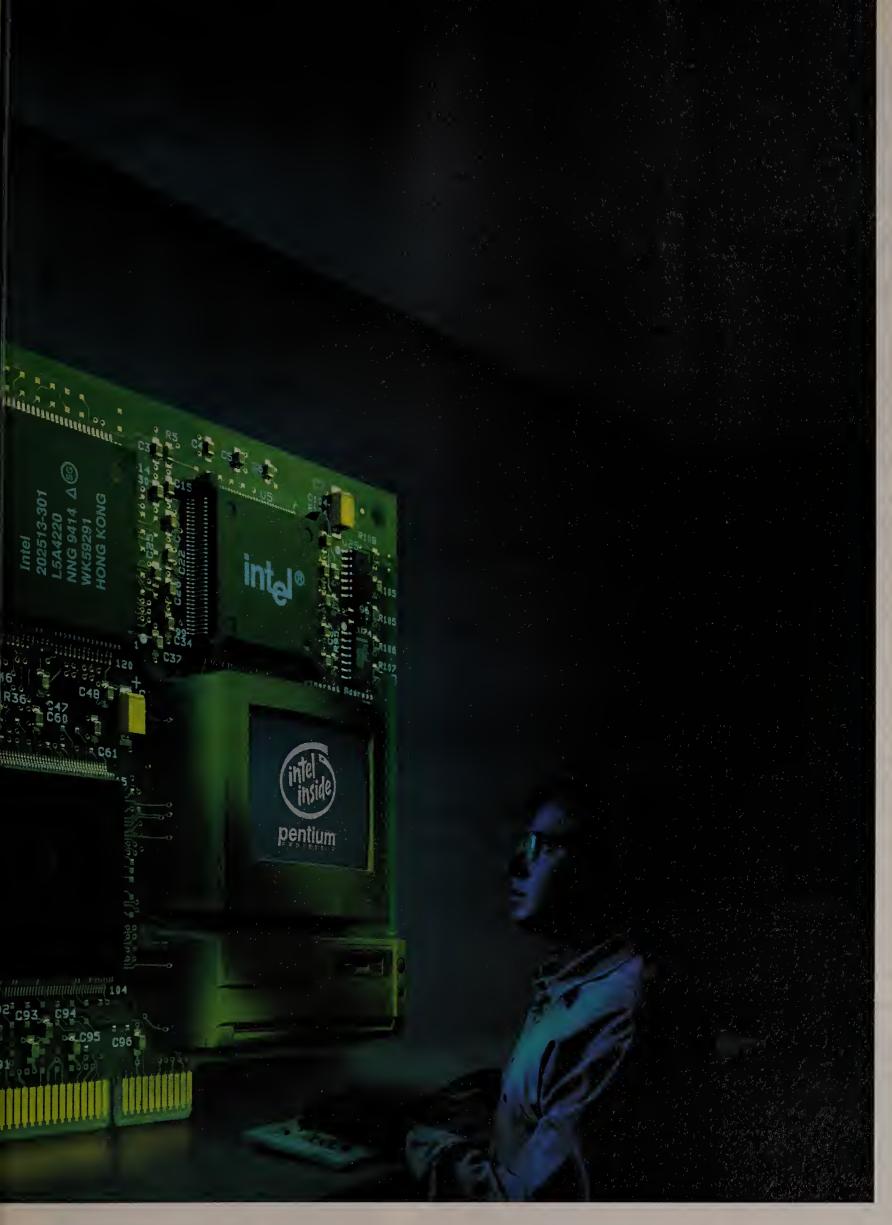
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Alantec plans to Fore-tify hub with **ATM technology**

BY MICHAEL CSENGER

San Jose, Calif.

Fore Systems, Inc. and Alantec Corp. last week announced a software licensing agreement that will marry Fore's ATM software with Alantec's PowerHub family of intelligent switching hubs.

Alantec joins about 10 other hardware and software vendors in Fore's ForeThought Partners program, through which Fore hopes to seed a broad base of tightly coupled products and applications supporting its ForeThought Asynchronous Transfer Mode technology.

ForeThought software supports ATM LAN emulation, switched virtual circuits, call signaling and Simple Network Management Protocol-based manage-

Alantec will use Fore's software in a series of ATM

interface modules for its PowerHub 3000, 5000 and 7000 series of Ethernet/Fiber Distributed Data Interface switching hubs. ATM modules for the 3000 and 5000 series will be available in the second quarter of next year, and one for the 7000 series will follow after midyear.

Alantec is handling the hardware development inhouse, said Yancy Lind, director of product planning.

"We'll be marrying the Fore software with our own switching architecture. There's a lot of heavy interworking to be done, mapping virtual LANs across the two environments and developing a routing mechanism to integrate the technologies," he said.

Alantec will later develop other types of ATM modules for its PowerHub family but will not develop an in-house ATM switch, Lind said. "We will remain rooted in the LAN market and will sell edge devices that feed an ATM backbone," he said. "The idea behind this partnership is that Fore gets to sell more switches and we get to sell more PowerHubs."

Such closely allied partnerships help promote value-added network capabilities without demanding single-vendor obeisance, said Bob Schiff, director of marketing for ATM products at Fore.

"Fore has done several things right so far, and their partnership campaign is one of the best ways for them to go," said Val Sribar, program director at META Group, a consultancy in Stamford, Conn. He said Cisco Systems, Inc. is attempting a similar approach by spreading its Internetworking Operating System software as widely as possible but started doing so much later in its product cycle.

"Fore is ensuring interoperability early on across as wide a base of other vendors' hardware and soft-

ware as possible," Sribar said.

"And for Alantec, Fore is the best partner they could have picked," he added. "Every other ATM LAN vendor competes against [Alantec], and Fore has a large enough installed base to support with edge devices."

Alantec would not provide pricing for its promised ATM interface modules.

©Fore: (412) 772-6600; Alantec: (800) 252-6832.

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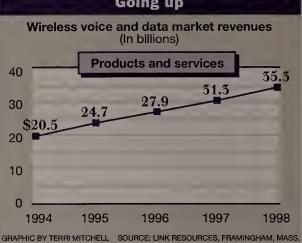
- Georgia State University
- Rice University

Motorola middleware gives MHS apps wireless hooks

BY JOANIE WEXLER

In a move that could let millions of users run wireless messaging applications as soon as next month, Motorola, Inc. last week unveiled middleware to shield developers from underlying packet radio network protocols.

Going up



The middleware, dubbed AirMobile, will let developers build applications once and then outfit them with links to the ARDIS Co. network, worldwide Mobitex networks such as the RAM Mobile Data net, DataTAC networks in Asia or, early next year, Cellular Digital Packet Data nets.

AirMobile, launched at Comdex/ Fall '94 here by Motorola's new Mobile Software Products division, is based on technology from Nettech Systems, Inc.

AirMobile supports Novell, Inc.'s Message Handling Service (MHS), which opens up all MHS-compliant applications — employed by 3.5 million users today — to wireless wide-area net-

working, said Richard Krebs, director of business operations for Mobile Software Products.

Once AirMobile is out next month, "you can go to CompUSA, buy a standard MHS application and run it unchanged over ARDIS, Mobitex or DataTAC," he said.

Native MHS applications are not the only ones gaining wireless hooks.

Messaging applications written to Vendor Independent Messaging, Microsoft Corp.'s Messag-

ing Application Programming Interface and the X.400 Application Program Interface Association's Common Mail Calls through Dynamic Link Library MHS interfaces from Novell can also be wirelessly enabled via AirMobile, said Mark Ryan, product-line manager of Novell's Net Ware Systems Group.

Initial AirMobile products include developer tools for mobile devices and servers, as well as simple wireless messaging and file-transfer applications that can be used alone or as a base for other applications (see graphic).

Observers see Motorola wireless

middleware as a solid first step toward spurring airborne applications.

"Anytime you can get a common denominator that covers multiple services, that is positive. It means products will take hold quicker and prices will start coming down," said Phil Evans, director of telecommunications at Perot

Systems Corp.

With a well-structured API, the developer need not understand how packets are set up for transmission, sent and unpacked at the other end, said Bob Perry, senior vice president at Greenwich, Conn.based River Run Software Group, a developer writing applications, tools and net management programs on top of Air Mobile.

"This eliminates having to write a lot of code -for which it is often diffi-

cult to get the information you need,"

Despite AirMobile's arrival, developers still have their work cut out building efficient, cost-effective applications to run over wireless nets, analysts warned:

While there are bandwidth-optimizing features such as compression algorithms in AirMobile, Tim Schmidt, principal analyst at the Orlando, Fla., consultancy Intelligent Technologies International, Inc., suggested developers employ intelligent agents and filters to give users control over whether or not they accept a transmission.

This is because emerging technol-

Group set to define new RMON version

BY JIM DUFFY

Santa Clara, Calif.

An IETF working group will meet for the first time this week to define a new version of the Remote Monitoring (RMON) Management Information Base (MIB) that will give users a standard way to gather statistics on network traffic by protocol and application.

RMON is a Simple Network Management Protocol MIB that provides detailed management of LAN segments via distributed probes.

RMON2 would extend the net management specification's protocol analysis capabilities across the seven layers of the International Standards Organization stack. Currently, the RMON standard only decodes packets at Layer 2 of the ISO stack, which limits statistical analysis to individual LAN segments.

"If I look at a host table [under RMON], I see Ethernet addresses," said Steven Waldbusser, manager of network development at Carnegie Mellon University in Pittsburgh. "What I really want is to have IP address entries and packets by IP address. If I want to find out who across the network is putting traffic across the backbone, I should be able to do that."

RMON2 "will tell you about the end system that sent it" rather than the intermediate system in a particular segment from which it came, he added.

Vendors hope to have a draft RMON2 MIB out by the end of February and RMON2 products by thirdquarter 1995. RMON2 will likely be implemented in network management systems and applications, as well as in net devices such as hubs and routers.

DEVELOPMENT INSTIGATOR

The upgraded standard should spur development of sophisticated management applications for capacity planning, accounting and correlation of data.

"People are very interested in seeing what percentage of a WAN link is AppleTalk vs. DECnet, [and] which protocols are using up capacity and bandwidth," said Jean Hammond, vice president of marketing at Axon Networks, Inc., a Newton, Mass., net management product vendor.

Similarly, users will be able to pinpoint the behavior of specific applications, such as Lotus Development Corp.'s Lotus Notes, over an enterprise net using RMON2, Hammond said.

Also, RMON2 will let users determine such information as how many transaction requests go between a client and server, how many clients access a server simultaneously, and how many retries are required before a client is allowed access to a server, said Russell Dietz, director of systems development for Technically Elite Concepts, Inc. in Hermosa Beach, Calif.

RMON2 will support SNMP and SNMPv2. Indeed, RMON vendors view the MIB's enhanced functionality as a requirement for SNMPv2's manager-to-manager communications, security and bulk data-transfer capabilities.

According to Michael Erlinger, a professor at Harvey Mudd College in Claremont, Calif., and former chairman of the IETF RMON working group, RMON2 will address several other areas. These include interoperability between multivendor RMON implementations; configuration management for RMON devices and agents; performance enhancements, such as better packet filtering and generation tools; duplicate address and address change protection; and host-to-physical port mapping.

There is still a potentially sticky issue that needs to be addressed: backward compatibility with current RMON implementations. It is not clear yet what users will need to do to prepare for RMON2's arrival.

AirMobile product portfolio

SDK Suite for DOS/Windows\$1,295
Communications Server SDK for OS/2 \$2,999
Communications Server Bundle for MHS-Windows/Radio\$695
Communications Server Bundle for MHS-OS/2
Utility Bundle (includes messaging

ARDIS, RAM or DataTac)\$59

and file-transfer applications for

All products to ship next month.

ogies allow attachments to documents that require lots of bandwidth. Such large files could wreak havoc with response times and connect-time charges, he explained.

Other firms playing in the wireless middleware market include AirSoft Corp. and MobileWare Corp., which focus on specialized applications or transports, and Racotek, Inc., a Minneapolis-based wireless integrator whose RacoNet server operating system is an alternative to AirMobile. RacoNet today interfaces to specialized mobile radio and Mobitex nets. 2

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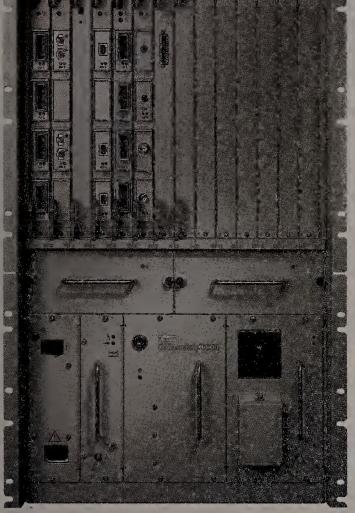
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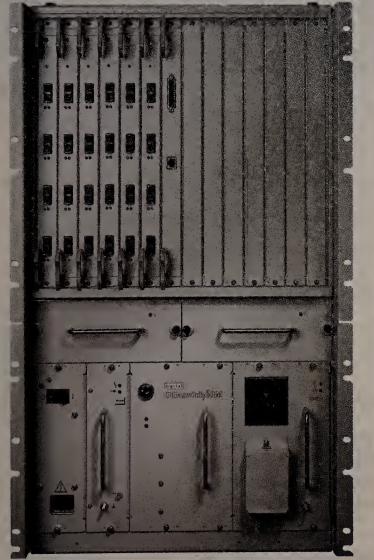
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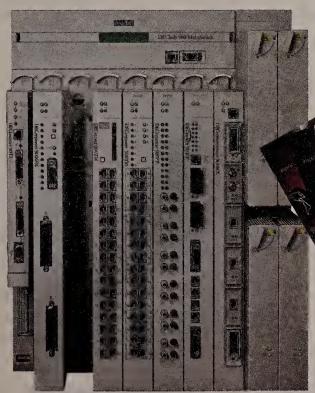
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TECHNOLOGIES

Enterprise Internets

Data Network Architectures, Standards, Equipment and Management

BRIEFS

The Business Software Alliance (BSA) last week said the software publishing and distribution industry loses roughly \$35 million per day in revenues due to software theft around the world. In one recent case, Utica Enterprises, Inc., a Detroit automotive parts manufacturer, agreed to pay \$260,000 to settle a lawsuit brought by the BSA due to unlicensed use of software products from Microsoft Corp., Lotus Development Corp. and other

NetLabs, Inc. has announced a new version of its NerveCenter event correlation engine and said it is ahead of schedule in fostering interoperability between NerveCenter and Hewlett-Packard Co.'s **HP OpenView** management platform.

Version 2.0 of Nerve Center includes features to synchronize collected information and managed devices with OpenView's database.

Also, NerveCenter can now run as an application on OpenView and no longer requires Net-Labs' DiMONS management platform to be resident on the same workstation. NerveCenter 2.0 allows OpenView to manage as many as 80,000 nodes, NetLabs said.

The software runs on HP 9000 Series 700 systems under HP-UX or Sun Microsystems, Inc. SPARCstations running SunOS.

It is priced from \$7,500 to \$15,000 and is avail-

NetLabs: (415) 961-9500.

Larscom, **Inc.** last week entered into a service partnership with Racal-Datacom, Inc. under which Racal will provide third-party service for Larscom products.

Contract and noncontract Larscom users can call the firm's 24-hour service center, located in Santa Clara, Calif., and Racal service personnel from more than 165 locations nationwide will make the service call.

Larscom (408) 988-6600; Racal: (305) 846-5238.

IBM last week announced that it will move its **Networked Application Services Division**, which develops network-based systems and software, and IBM Global Network, which runs the Advantis network and other worldwide telecommunications links, under its outsourcing and computer

The move is intended to increase the visibility of both groups and enable them to get closer to users, IBM said.

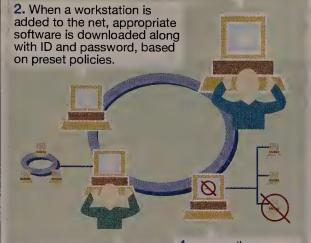
It also reflects elevation in the status of the divisions from their start-up phase. Both were formed less than a year ago.

The Department of the Treasury's division for payment and collection systems, the Financial Management Service, last week picked Martin Marietta Technologies, Inc. to install the planned Government On-line Accounting Link System (GOALS), which will link 1,200 federal agencies to share accounting data and financial information. The GOALS contract is valued at \$13.7 million over five years.

ICL: (703) 648-3300.

Ch-ch-ch-changes

1. Manager inputs administrative and system configuration policies at the AdminCenter console.



3. AdminCenter can also delegate specific admini-strative tasks to LAN managers — such as adding peripheral devices to their subnetworks...

4. ...as well as automatically logging a configuration change and alerting the administrator.

GRAPHIC BY TERRI MITCHELL

HP tools automate configuration mgmt.

BY JIM DUFFY

Palo Alto, Calif.

Hewlett-Packard Co. last week unveiled software for its HP Open View management platform that automates change and configuration management for enterprise networks.

Called AdminCenter, the software is designed to simplify the job of administering distributed systems and applications, including setting up new users on the network (NW, Aug. 15, page 1). AdminCenter automates tasks such as configuring new systems, servers, user profiles and software, thereby reducing the time and cost required to perform these duties.

"We're going to take a real hard look

at [AdminCenter]," said Rick Sturm, a member of the technical staff at US WEST Advanced Technologies in Boulder, Colo., and an OpenView user. "It appears to be addressing needs that we have. The degree of integration that it appears to have with OpenView makes [AdminCenter] quite attractive."

The software runs on HP-UX systems along with OpenView. Admin-Center agents run on HP-UX, IBM's AIX and Sun Microsystems, Inc.'s Solaris workstations, as well as Novell, Inc.'s NetWare servers.

In the first release, AdminCenter will maintain inventory information about software, file systems, peripheral

See Configuration, page 24

Users say teamwork is key to successful net security plans

BY ELLEN MESSMER

Washington, D.C.

Information security managers, computer-savvy technicians whose calling is to protect their organization's mainframe, PC and network resources, find their jobs often boil down to building the old team spirit.

According to security professionals who gathered at the Computer Security Institute's 21st Annual Computer Security Conference here last week, a good way to build consensus is to pull together forums that meet regularly to address specific issues. The goal is to gain the confidence of everyone from the chief executive officer to network operations and human resources staff.

Charles Johnson, who for three years was the information systems security architect at Cummins Engine Co. in Columbus, Ohio,

participates in an Information Architecture Functional Group composed of division representatives. The group decides which

applications and nets will be used at the firm's 247 sites worldwide.

Participation in the architecture group has helped Johnson and his security division win backing and formulate policies, including disaster recovery plans.

He also created the Cummins Information Security Council, a volunteer cadre from the computer and telecommunications divisions, as well as legal, auditing, marketing and human resources. "You've got to get the MIS department on-board or it won't work," Johnson said.

Getting people involved at Cum- GRAPHIC BY TERRI MITCHELL

mins led to security improvements. For example, changing the access parameters on the IBM mainframe-based Resource Access Control Facility (RACF) to "protect by default" rather than "allow through default" restricted employee access to files.

In another instance, LAN managers worked together to set up auditing proce-See Teamwork, page 24

Feeling secure?

A survey of 95 information security managers attending the 21st Annual Computer Security Conference last week reveals that...



53% feel unauthorized access to corporate nets via the Internet is a significant risk.



55% have no Internet security in place in their organizations.



32% believe the threat of unauthorized access via the Internet will prevent corporate use of it.

11% report significant financial losses

SOURCE: SECURITY DYNAMICS, CAMBRIDGE, MASS

ATM pioneers offer insight, advice

Next Generation

Networks Conference

BY MICHAEL CSENGER

With some pilot networks up for about nine months, early ATM adopters now have enough experience with the technology to offer some words of wisdom: Do your homework and proceed with caution.

The first Asynchronous Transfer Mode trials, especially in wide-area nets, have focused mainly on performance benchmarking to gauge

the effect ATM has on throughput and quality of service. Simple orientation is another ongoing exercise as network managers and their staffs learn to deal with the new technology, according to users at the recent 8th Annual Next Generation Networks Confer-

"A lot of what we've been doing with ATM is learning how to work with it," said David Beering, staff telecommunications analyst at Amoco Corp. in Chicago. "It takes time to learn how to fix it or to even know

when it's broken."

"Learn frame relay," said John Boyd, chief networking technologist at Northeast Utilities in Berlin, Conn.

"We've been working with frame relay for several years and made a point of getting our staff familiar with its virtual connection architecture because it comes back at you again with ATM.

"We're investing in a brain trust," Boyd said. "You need to surround yourself with excellent people from a mix of backgrounds. Strong Unix skills are a must — this stuff is not DOS."

Performance benchmarking alone will take about six months, said Walter Gould, senior systems scientist at Computer Sciences Corp. (CSC), which supports the National Aeronautics and Space Administration's WAN. CSC started from scratch with simple point-to-point ATM trials that now provide a point of reference for connections made over ATM switched services. The company is reviewing its data and will begin an expansion phase next May.

"Every time we turned over a rock, we found traffic congestion to be a key issue," Gould said. Multiple qualities of service are

See Pioneers, page 23

by Dan Minoli

Putting the brakes on the ATM bandwagon

or years, ATM has been touted as the next revolution on the communications landscape in general and in enterprise networking in particular.

Dozens of polls purport to indicate that from 20% to 50% of users plan to deploy ATM in the next 18 to 36 months, and products are now appearing that support ATM functions.

So ATM-based computing will soon be a fixture on the desk of every white collar worker in corporate America, right? Not so fast. ATM has to still pass a number of critical tests before such a destiny is assured.

First, numbers can be misleading. Many surveys are not conducted to be scientifically valid, which would entail contacting 500 users at random out of the estimated 800,000 or so organizations in the U.S. that have LANs.

A handful of market research companies have conducted such statistically valid studies at the expense of several hundred thousand dollars. The results of these studies, however, are well-kept secrets.

Second, even if organizations were to deploy ATM, the likely situation is that they would deploy it for perhaps a dozen terminals or less, not for the thousands of PCs deployed in the company.

Then there is the issue of pricing. Currently, an ATM connection costs \$2,000 for the electronics on each end. One of our clients with 2,000 PCs would have to invest \$4 million

to retrofit these PCs. even if there were no other bottlenecks and if the user had clean Category 5 or 3 wiring.

Rewiring costs from \$300 to \$500 per PC on horizontal runs, or another \$1 million for our client.

By all predic-

tions, the per-user costs are expected to be \$500 by 1996. So why make the investment now? Simply wait two years.

An expense of \$4 million now vs. achieving the same end result two years from now with an expenditure of \$1 million — saving \$3 million is equivalent to achieving an interest rate of 100% per year.

In our practice, we've encountered a number of other questions and concerns about ATM-based, ATM-ready, ATM-compatible or ATM-configured products, including the fol-

- Vendors should indicate if the product supports switched virtual circuits or only permanent virtual circuits, as well as what quality-ofservice options and congestion management schemes are offered.
- What interworking capabilities are supported (for example, LAN emulation)? Does the product support the concepts of virtual workgroups and LANs, cell multicasting and/or broadcasting?
- Are the User-to-Network Interface and Network-to-Network Interface standardized? And this is critical: Does the product interwork with equipment from other vendors, such as routers and switches?
- What network management capabilities are supported? Does the vendor have an integrated network management system that can control all elements of the networks - routers, switches, hubs, etc.?
- Can the vendor provide a cost and performance analysis of ATM, FDDI and 100M bit/sec Ethernet to support the business deci-
- Vendors should describe their short-term, mid-term and long-term evolution plans to let users plan for the migration of their networks. In particular, vendors need to clarify how their product will support video, image, voice and computer-telephone integration applications.

If vendors were more capable of providing persuasive answers to these questions, perhaps end users would feel more inclined to start deploying ATM more aggressively, beyond mere technology trials often instituted for the sake of being able to report to senior management that the organization is at the forefront of technology.

◆ Minoli is a principal consultant at DVI Communications, a full-service consultancy in data, voice and video based in New York. He can be reached at minoli@pipeline.com. Minoli shares this space with Harvard University's Scott Bradner, whose column will appear next week.



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ENTERPRISE NETWORK MGMT.

LEGENT looks to NetTech for trouble-ticket solution

BY MICHAEL COONEY

LEGENT Corp. this week is expected to announce software that enables its Paradigm trouble-ticket program to exchange data with IBM's mainframe-based Information/Manager (Info/Man), helping users bridge the gap between distributed SNMP managers and host-based management tools.

LEGENT's Automated Internetwork Problem Reporter (AIPR) package will let users with a centralized mainframe and distributed net management platforms coordinate and manage the process of resolving enterprise net

problems.

AIPR will let those TCP/IP users that do not have a Simple Network Management Protocolbased manager, like Hewlett-Packard Co.'s HP OpenView, use the Info/Man database for trouble-ticketing applications. Info/Man is IBM's mainframe-based problem management system, and Paradigm runs on SNMP managers including OpenView, IBM's NetView for AIX and SunSoft, Inc.'s SunNet Manager.

Key to AIPR are EView software agents from NetTech, Inc., based here, which collect data from IBM's host-based NetView net management system and VTAM, the central controlling software in Systems Network Architecture environments. AIPR also contains features that let users write commands EView can automatically kick off if there is a problem.

"Users with distributed managers like OpenView have never had access to the Info/Man database where most enterprise management information resides," said Ellis Gregory, president of NetTech. "The idea with AIPR is to not only provide access to that data, but to let those users who are downsizing the mainframe pull Info/Man data into their Paradigm systems for enterprise management."

That's how beta users at American Greetings in Cleveland, Ohio, are using it.

'We have a lot of enterprise management data in Info/Man that we want to run entirely on our OpenView system in the future," said David Winther, manager of telecommunications with the company. The organization is now in the process of implementing AIPR in their production environment.

AIPR employs an EView software agent on the mainframe and on the SNMP platform running Paradigm, which is OpenView in Win-

The agent on OpenView captures SNMP alarms generated by downstream TCP/IP devices. Alarm data is displayed on the Open-View screen, but the EView agent also passes it to the mainframe agent, which, in turn, delivers the data to Info/Man.

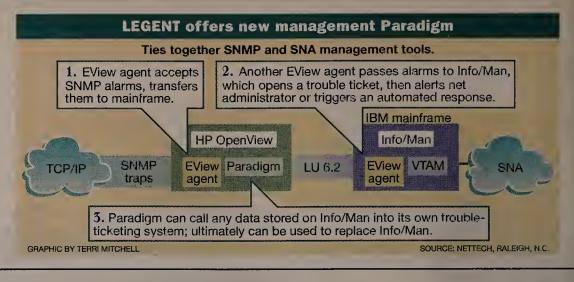
Info/Man opens a trouble ticket, which can be updated from the OpenView screen. Open-View users can also search and retrieve historical management data that might pertain to that trouble ticket from the Info/Man database.

Users can track problems from beginning to resolution from the Paradigm platform or Info/Man. Because of its graphics capabilities, most users with platforms like OpenView will want to track everything from the distributed platform, Net'Tech's Gregory said.

"We can tie the information in Info/Man with what we are seeing locally on OpenView to get a much clearer idea of what we're having problems with," Winther said.

AIPR is available now from LEGENT for prices starting at \$30,000.

©LEGENT: (703) 708-3000; NetTech: (919) 781-7887.





A smart way to spe

Device offers dial-up security for all

BY MICHAEL CSENGER

Baltimore

Information Resource Engineering, Inc. (IRE) last week introduced a device that lets small companies and branch offices make use of dial-up data encryption and user authentication features generally considered affordable only for larger organizations.

IRE's A1000 Single Line Host is an adjunct that resides between the receiving modem and the access server that remote users dial in to. It is designed for use with IRE's AX400 encrypted modem, a pocket-sized portable V.32bis modem operating at 14.4K bit/sec.

The AX400 supports data encryption and provides random password generation with each call. A user simply enters a personal identification number when prompted, and the modem sends a password to the central site A1000, which authenticates the user's identity and allows the connection to proceed.

The A1000 also handles de-encryption,

enabling it to be used with standard V.32bis modems at the central site.

Most remote access solutions get by with static passwords that can easily be compromised, while the more advanced token-based systems require additional hardware and user involvement, the company said.

"We offer high-level security that is easy to use," said Jill Leukhardt, IRE's vice president of sales and marketing. "The remote user has to carry only one device — a modem — for secure authentication and data encryption."

The A1000 is a scaled-down version of IRE's larger host security product line.

Attached to a single modem, it can support as many as 32 different users one at a time.

Experts said IRE's authentication technology is probably its most valuable feature, as the need for encryption is limited mostly to financial institutions and government agencies.

"I think people are over-worried about line taps or sniffers that will pull your data off a net," said Daniel Briere, president of Telechoice, Inc., a consultancy Verona, N.J. "But authentication is an important requirement for any firm that opens its net to dial-in users."

Anything that enhances and simplifies user authentication — as IRE's password generator does - is helpful, Briere said. "I think these security features will be a short-term differentiator among modems, like fax capability once was.''

Available now, the A1000 costs \$795, and the AX400 encrypted modem costs \$495.

©IRE: (410)931-7500.



Product: A1000 Single Line Host Company: IRE

The benefits:

- Provides user authentication over dial-up modem links.
- Generates new password for each call.
- Provides secure data encryption.
- Is a standardscompliant, single-box solution.

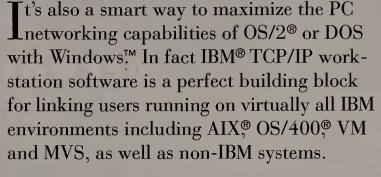
The drawbacks:

- Supports only one call at a time.
- Is limited to 14.4K bit/sec V.32 modem link.

The user view: We have people calling in from all over the country who could use secure authentication. But I don't see a need for data

encryption unless in the future we start doing transmissions involving money. 77

Bjorn Billing, senior systems analyst, Delta



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Pioneers

Continued from page 19

an immediate need, he said, in order to tune the network for different traffic types.

Gould said he does not expect to see mission-critical traffic running over ATM for another 18 to 24 months.

While Amoco is starting with a multivendor environment, Northeast Utilities' Boyd suggests a simpler single-vendor approach.

ATM pointers

Performance - Baselining is key.

Keep it simple — ATM virtual LANs quickly become a management maze.

Expect bottlenecks — High-performance workstation drivers and operating systems can crash under 155M bit/sec ATM load.

Training — Teach yourself and your operations staff about frame relay before venturing into ATM.

Be patient — Today's pilot nets won't carry mission-critical production traffic for another 18 to 24 months.

"Make sure you look upstream and downstream when buying a device," he said. "If you have to connect different vendors' equipment, make sure they are allied closely enough to work out snags."

Even in simple ATM LAN backbone trials "you have to start slow," said Tom Golway, director of emerging technologies at GCE Consulting, Inc. in New York.

"Avoid complex virtual LAN

configurations," he advised. "When things blow up in a virtual environment, you realize how difficult it is to know where things are happening and what's going on." **∠**





Il interoperability.

Configuration

Continued from page 19

devices, users and groups, passwords and other systems, including operating systems kernels and print spoolers. With this information, users can establish policies for users and groups of users — such as software and operating system versions for their workstations, network and systems access rights, logon identifications and passwords — and implement them using simple point-and-click commands.

AdminCenter will also allow users to dele-

gate administration privileges, whereby varying degrees of administrative responsibility are allocated to administrators in different network domains. For example, a local administrator might be allowed to add and configure a printer but not be allowed to do operating system configuration and performance tuning.

The software also features a configuration policy setting, which verifies that any configuration change is in accordance with predefined policies and alerts the administrator to any vio-

Other features of AdminCenter are synchronization, which keeps administrators appraised of any changes to the managed environment, and rollback, whereby administrators can undo changes or configuration updates, as necessary.

Additionally, a simulation capability can show an administrator how a planned change will impact the managed environment before the actual change is initiated.

MORETHAN A FRAMEWORK

HP is positioning AdminCenter against the systems administration capabilities of Tivoli Systems, Inc.'s Tivoli Management Environment, and according to analysts, the HP offering is more complete.

"Tivoli has a lot of the same perspective the ability to add policies and constraints," said John McConnell, president of McConnell Consulting, Inc. in Boulder. "But Tivoli doesn't have the tools to go along with the framework. They're still missing pieces. HP's bringing some really good tools along with the policy framework.

AdminCenter can work hand in hand with other OpenView applications, such as OperationsCenter. OperationsCenter monitors networked systems and issues a trouble ticket if it detects a problem. If the problem is system configuration-related, the trouble ticket is forwarded to AdminCenter, which plans and performs configuration changes, then updates the trouble ticket accordingly.

AdminCenter for HP-UX is expected to be

available in March 1995 with pricing starting at \$15,800. Agents for IBM AIX, Sun Solaris and Novell Net Ware servers will be available in

©HP: (800) 637-7740.

Teamwork

Continued from page 19

dures to eliminate a problem with unauthorized software duplication.

There are also security threats from outside the organization, especially as more firms connect to the Internet (see graphic, page 19).

With that in mind, Lockheed Corp. recently installed a router that acts as an application fire wall. It lets Lockheed employees dial out to the Internet, while granting some non-Lockheed employees access via dynamic password control to the Lockheed internal net.

The fire wall effort required the security division to coordinate closely with the telecommunications, networking and software application people, said Lynda McGhie, Lockheed's supervisor of data security.

"You need an overall fire wall architecture documents you can refer to in your security plan," McGhie said.

SECURITY CHECKPOINT

Computer systems technicians tend to view security as your problem, not theirs, which makes winning their support a challenge, said Carl Carlson, data security administrator at Northwest Airlines Corp.

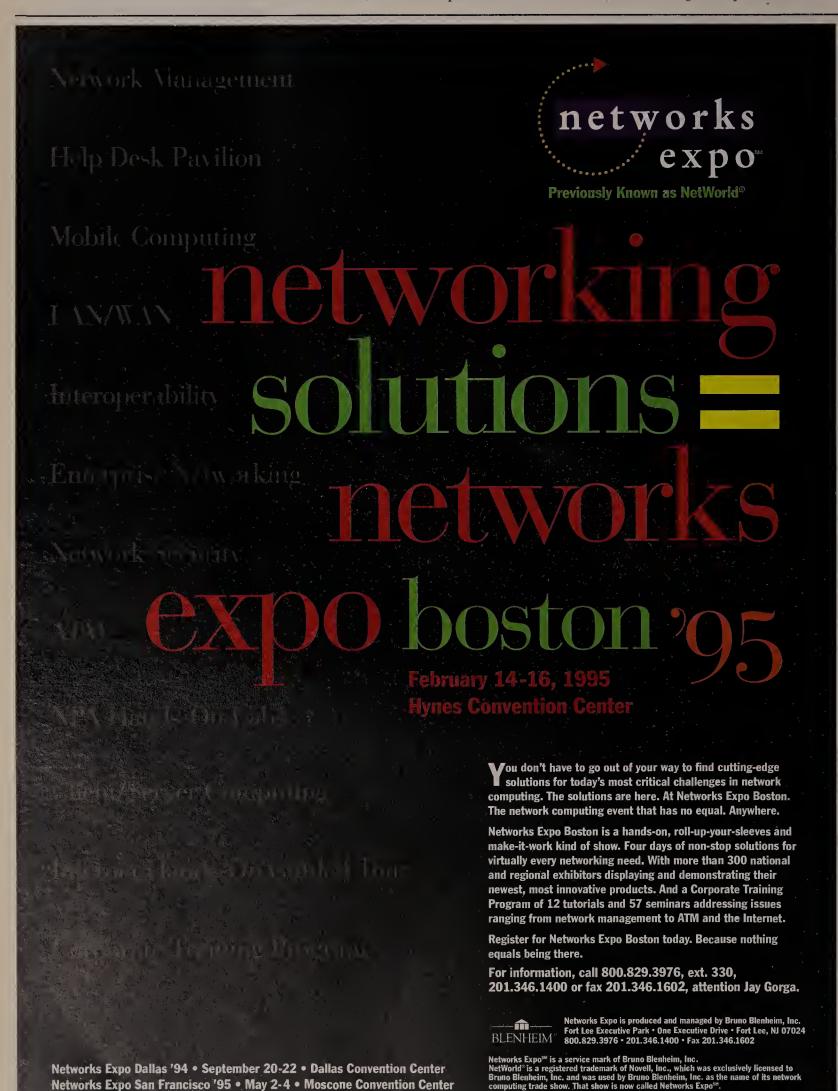
Like at many firms, the Northwest Airlines' information security division deactivates employee computer access and communications during layoffs or voluntary departures.

''You have to convince human resources it's important to know right away when a person is leaving," Carlson said. "Explain the risks, tell them you need to know ahead of time, and you'll keep the information confidential."

Carlson's four-man security team manages password IDs for 47,000 individuals and 15,000 terminals. So the layoff of hundreds of people there in the past two years forced the security division to set up a "ready room" of computer terminals to handle the volume.

"And once an employee is let go, how do you handle their files and their E-mail?" Carlson asked. "You need policies for that, too, such as alternate routing or return message, or inactivation."

As painful as a reduction in force is to everyone within a firm, including the survivors, information security officers admit that the disgruntled ex-employee is one of the company's more significant security threats.



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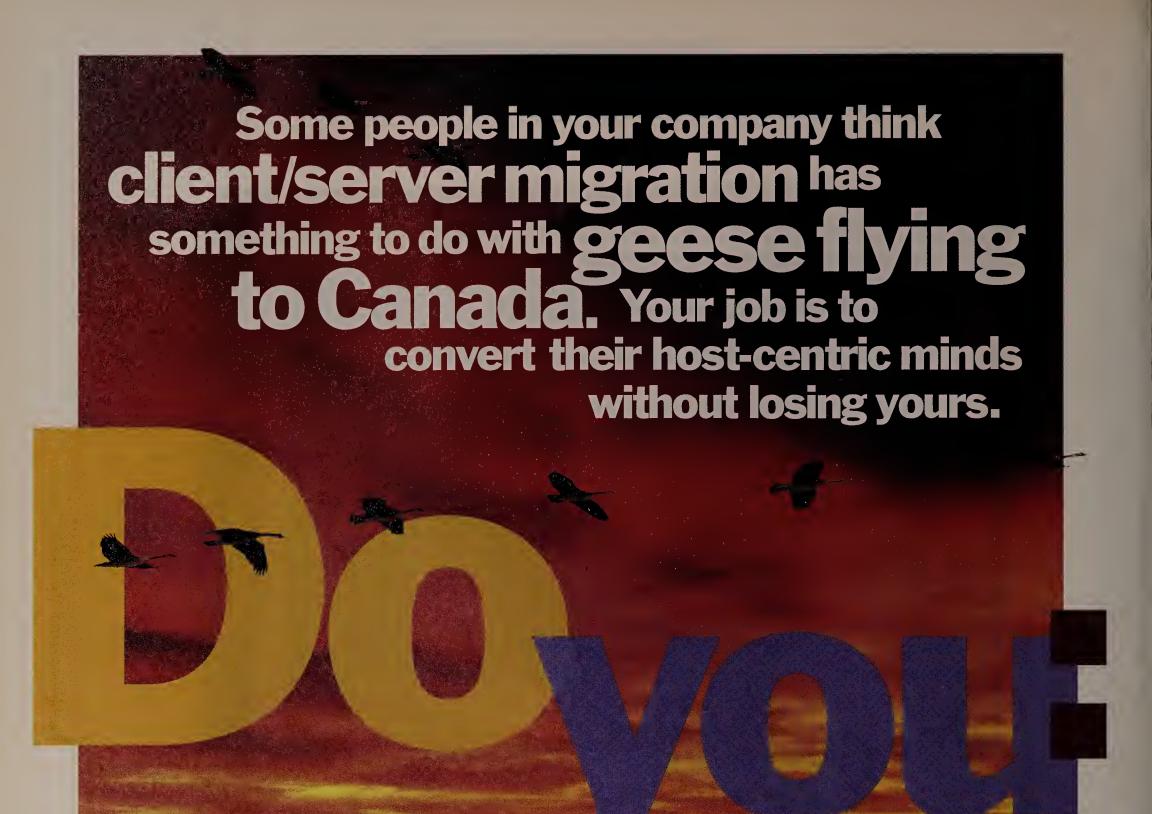
We're called Bay Networks.™ And we've combined the strengths of two industry leaders – Wellfleet's expertise in WANs and routers, and SynOptics' leadership in switching and hubs, plus our common strength in network management.

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Choosing Irma™ host information access software and ToolSet will help move you to client/server without losing a single application or bit of legacy data. QuickApp™ is one reason why it'll happen. This tool integrates host-based information into new graphical client/server applications in half the time of other development tools. That way developers can concentrate on improving business systems, not writing mind-boggling communications code. A feat QuickApp performs with Microsoft® Visual Basic™, Visual C++,™ Gupta™ SQLWindows™, PowerSoft® PowerBuilder™ or KnowledgeWare® ObjectView.™

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will supplement

printed newsletters

and catalogs

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using [WWW]

servers."

Vice president, technology

Graham Wright

Beame & Whiteside

BY PEGGY WATT

Las Vegas

Beame & Whiteside Software, Inc.

of Raleigh, N.C., last week launched a selection of Internet access features for LAN users, including a World-Wide Web (WWW) server.

The features are available in Version 3.2 of the company's client/serverbased BW-Connect software, which is available for Network File System (NFS) and TCP/IP nets. The software was demonstrated at Comdex/Fall '94 here.

The software, scheduled to ship in

December, also features new multimedia electronic messaging support and new security functions.

> BW-Connect's WWW server uses the Hypertext Transfer Protocol (HTTP) to deliver data to the desktop formatted with Hypertext Markup Language (HTML).

> The software will also enable users to employ the Universal Resource Locator naming convention to find and transfer data using File Transfer Protocol (FTP) Gopher technology. In

addition, BW-Connect 3.2 provides a

See Beame, page 30

Beame & Whiteside boosts | Sentinel Systems makes its move into superserver market

Maximum Strategy, NetFRAME, Compaq also air new servers.

Server selections

Pricing

\$5,400

Starts at

\$120,000

\$89,950

\$50,000

Product

ProFile L and XL

Sentry-E

ClusterServe

500

8500

ProSignia

BY MARGARET DORNBUSCH

Start-up Sentinel Systems, Inc. last week announced its foray into the superserver market, while storage company Maximum Strategy, Inc. rolled out its first file server.

Veteran server companies NetFRAME Systems, Inc. and Compaq Computer Corp. separately beefed up their product lines, as well.

Sentinel Systems' Sentry-E superserver, manufac-

Company

Maximum

NetFRAME

Strategy

Sentinel

Systems

GRAPHIC BY TERRI MITCHELL

Compaq

tured under contract by IBM, is available with two to 24 Intel 80x86 or Pentium processors and is designed to handle mission-critical applications.

The server runs Novell, Inc. NetWare, Microsoft Corp. Windows NT, OS/2 and a variety of Unix operating systems. It features Industry Standard Architecture and Extended

Industry Standard Architecture (EISA) buses and standard Small Computer System Interface disk drives. The server supports Asynchronous Transfer Mode, fast Ethernet and other network types.

The Sentry-E base configuration features redundant processing subsystems, each with a 66-MHz Intel 486 or Pentium processor, 16K bytes of cache memory, 16M bytes of bus-resident random-access memory expandable to 512M bytes, and a 400M-byte SCSI fixed disk drive. The redundant systems process data simultaneously, compare results and correct any soft errors automatically. If a hard error is detected, the failing component is taken off-line automatically.

MAXIMUM IMPACT

Maximum Strategy's new file servers, the ProFile XL and ProFile L, provide Network File System-based file services for computer-aided design and other processing-intensive applications.

The ProFile XL provides up to 376G bytes of storage with RAID Level 5 protection and an aggregate file transfer rate of 50M bytes/sec. The ProFile XL can be configured with up to four independent network adapters that support Internet Protocol traffic over over High Performance Parallel Interface channel,

ATM or Fibre Channel network connections. The file server runs on one of two Motorola 68060 CPUs and can access metadata (file identifier information) from cache for up to 60,000 of the most recently accessed files. The second CPU manages data storage and retrieval operations, and sets up all high-speed data transfers. Should either CPU fail, the other CPU will take over. The ProFile L is an entry level system that provides aggregate file transfer rates of 20M bytes/sec and can be configured with 30G bytes or 60G bytes of user file data.

NEW FAMILY MEMBER

NetFRAME last week added to its mid-range server family with a new model, the ClusterServer 8500 (NF8500), specifically designed to improve processor/cache dependability. The system supports

both processing among clustered servers as well as symmetrical multiprocessing.

The NF8500 can support up to 12 100-MHz Pentium processors and will initially run NetWare. Net-FRAME will announce support for Windows NT later this year.

A REAL PROSIGNIA

Availability

receipt of order

Now

Now

Starts at 90 days from

January

Compaq's newest server, the ProSignia 500, will sit at the high end of the company's line of mid-range

servers.

The server includes both EISA and Peripheral Component Interconnect buses, a 90-MHz Pentium CPU and an upgradable processor board that allows users to move to next Pentium generations. The server also features an integrated 32-bit Ethernet network interface card and 32-bit Fast

SCSI-2 controller.

The server is optimized for NetWare networks running multiple Net Ware Loadable Modules and Virtual Loadable Modules, but also supports Windows NT, OS/2 and SCO Unix.

Compaq: (800) 888-5858; Maximum Strategy: (408) 383-1600; NetFRAME: (408) 944-0600; Sentinel Systems: (215) 830-1900.

COMDEX ROUNDUP

Arcada plays its LAN backup hand in Vegas

BY PEGGY WATT AND MARGARET DORNBUSCH

Arcada Software, Inc., based in Lake Mary, Fla., unveiled at Comdex/Fall '94 here last week additions to its family of LAN backup programs, including an updated Windows NT version and a new OS/2 version.

The new Backup Exec 6.0 for Windows NT will be able to run not only on Intel Corp. platforms, but also on PowerPC-based platforms. The software includes agents for Unix, Macintosh and Windows 95 clients.

The software is designed to back up multiple servers - even across dial-up lines - from a single Windows NT workstation.

Pricing will be announced upon release in the first quarter of 1995.

Arcada Backup LT for OS/2 is an entry-level product that backs up OS/2 servers, including those based on IBM's new 32-bit Warp version of OS/2. The software will be available first through OEM channels for See Comdex, page 30

BRIEFS

Shiva Corp. last week announced a version of its LanRover/Plus network modem server designed for remote offices.

The LanRover/2E Plus gives mobile users the ability to dial in to their branch office LANs from the road, and provides for single-user dial-out and LAN-to-LAN connections from within a branch office net-

The product comes with a 28.8K bit/sec V.34 modem and a 115.2K bit/sec serial module through which it can support ISDN, switched 56K bit/sec and X.25 communications. It also comes with an unlimited client software license for Shiva Remote, the company's Point-to-Point Protocol client, and with Shiva NetManager, which provides remote management of the product. It will ship Dec. 1 for \$2,799.

Shiva: (617) 270-8300.

Asynchronous Transfer Mode start-up Advanced Telecommunications Modules, Ltd. (ATML) of Cupertino, Calif., last week named Fred Sammartino as its new vice president of business development.

He will be responsible for managing technology partnerships, strategic alliances and long-term customer relations.

Sammartino has served for the past three years as president and chairman of the board of the ATM

Before joining ATML, Sammar-

tino was chief technologist for Sun Microsystems, Inc.

Silicom Connectivity Solutions, Inc. last week announced a PCMCIA card that is a combination Ethernet adapter and flash memory card.

The EtherFlash card comes with either 1M or 2M bytes of flash memory, as well as Ethernet connections for 10Base-T, 10Base2 or both. Users can maintain a LAN connection and simultaneously store or access data in the card's flash memory.

Prices range from \$349 for 1M byte of memory and a 10Base-T connection to \$479 for 2M bytes of memory and both 10Base-T and 10Base2 connections.

Silicom: (800) 474-5426.

Boca Research, Inc. announced a 10Base-T Ethernet hub with modules for direct connections to 10Base2, 10Base5 and fiber-optic cabling.

The Bocahub-24Plus has 24 10Base-T ports with RI-45 connectors, plus one 10Base2 port with a BNC connector and a 10Base5 port with an AUI connector. There is one slot available for a module with an additional port.

The hub can partition nets by logically disabling ports that have a high number of collisions, and automatically reconnects ports when the problem has been solved. It is available now for about \$850.

Boca: (407) 997-6227.

Windows Connectivity Forum

Cruising the Internet via Windows

By Joel Diamond

Technical director

Windows User Group Network

76702.1023@CompuServe.com

WUGNET

For the past few months, it has been rumored that Microsoft Corp. has been working on a tool that would easily allow users to create their own Hypertext Markup Language pages in Microsoft Word.

At Comdex/Fall '94, Microsoft finally demonstrated this tool,

dubbed Internet Assistant for Word and developed by Book-Link Technologies, Inc., a company that America Online, Inc. just ac-

quired for \$30 million.

While Microsoft has not yet decided how Internet Assistant for Word will be released, folks on the Internet indicated that the software will be released as copyrighted freeware and posted on the Internet for downloading.

Given this, chances are that the software will become the No. 1 authoring tool for producing World-Wide Web (WWW) pages under Win-

If and when the software is released, we'll try to add it to the Windows Connectivity Forum's (WIN-CON) HTML/WEB Tool Library 10, which already contains a half-dozen HTML WWW-authoring tools.

Microsoft Chairman Bill Gates gave a short demonstration of Internet Assistant for Word, creating links by dragging and dropping, and using OLE 2.0 to insert sound and graphic objects into applications.

In addition, we were privy to two interesting claims about Internet Assistant that require follow-up: the ability to access HTML documents within Word and a facility to create WWW links across a corporate net-

This sounds almost identical to QuarterDeck Office Systems, Inc. Normandy beta offering that features a suite of WWW-authoring, viewer and other components.

WINDOWS NT AND TCP/IP DEVELOPMENTS

Comdex also featured a flurry of activity in the area of TCP/IP support for Windows NT 3.5.

NetManage, Inc., based in Cupertine. Calif., announced Chameloca 32NFS 4.01, the first native 32-bit Whidows application, as well as NFS clients for Windows NT 3.5. NetManage claims that its entire suite of server applications, including integrated Network File System/Windows NI logon and printing, run as server services.

The client applications include

versions of newsreader, gopher, TN5250, PhoneTag and Simple Mail Transfer Protocol with Multi-purpose Internet Mail Extensions.

The software will sell for \$695 per

WINCON Members: If you are a Chameleon 32NFS user, please let us

> know how Version 4.01 works and whether it is compatible with Beame & Whiteside Software, 32-bit Inc.'s WinSock.DLL for NT. (Inciden-

tally, look for a demo of the Beame & Whiteside software in WINCON Library 1 next week.)

AN INTERNET FOCUS

More than two dozen new tools, applications and technical resources were contributed last week to WIN-CON Library 10's Windows WinSock and Internet Tools library.

Here's a list of "must haves" for your Windows workstation:

- WebGate Version . 01B WebGate provides an interactive way to extract information from a Lotus Development Corp. Notes database directly into the WWW HTML format.
- LPR Spooler 4 for WinSock (WLPR40.ZIP) — This program allows transparent printing from Windows 3.1 applications to network printers over TCP/IP and Internet connections.
- WSArchie .6 (WSARCH.ZIP) It is the latest version of one of the only Archie client utilities for WinSock and Windows Internet configura-

This version is stable and works well with the new Trumpet 2.0b Win-Sock stack, Distinct TCP/IP WinSock and SuperTCP/IP.

■ WSGopher 1.1 (WSG-11.EXE) — One of the most sophisticated Win-Sock gophers available. This public domain software has been tested with SuperTCP/IP, Distinct and Trumpet

CompuServe

To participate on the Windows Connectivity Forum, type Go Wincon at any! prompt on CompuServe. For those of you who are not CompuServe subscribers, Network World and the Windows Users Group Network are offering a free membership signup by calling (800) 524-3388. Ask for Operator 426.

Onet and NBase add to Ethernet switches brew

BY KEVIN FOGARTY

The Ethernet switch caldron continues to bubble, with new products being announced nearly every week.

Onet Data Communication Technologies and NBase Switch Communications last week con-

Onet announced the 12-port stand-alone LANbooster 1000 Ethernet switch, aimed at networks with fewer than 200 nodes.

The device provides 10M bit/sec per port switching and is based on the same MetaSwitch ing cut-through frame-forwarding mechanism as the company's higher end LANbooster 2000 and LANbooster 5000 models. MetaSwitching is designed to improve Ethernet switching performance by providing a high-speed backplane bus for data cells and large memory capacity. The LANbooster 1000 has a fixed non-blocking latency of 40

The switch, which includes a Simple Network

Management Protocol module, costs \$695 per port is

NBASE OFFERINGS

Separately, NBase announced 15-port and eightport Ethernet switches.

The 15-port MegaSwitch NH215 has 13 Ethernet ports and two fast Ethernet ports, which can be configured to support 100Base-TX, 100Base-VT and Asynchronous Transfer Mode connections with add-on modules. The 100Base-TX module will be delivered with the product in December; the others will be available in the future.

The eight-port MegaSwitch NH208 has six Ethernet ports and two fast Ethernet ports.

New Ethernet switches					
Company	Product	Number of ports	Price/ Availability		
Onet	LANbooster 1000	12	\$8,340/ Now		
NBase	MegaSwitch NH215	13 Ethernet 2 fast Ethernet	\$7,995*/ Dec. 15		
	MegaSwitch NH208	6 Ethernet 2 fast Ethernet	\$3,995*/ Dec. 15		

The 15-port version will sell for \$7,995 and the eight-port version will cost \$3,995. Fast Ethernet modules cost \$1,295 each.

Onet: (617) 576-5759; NBase: (800) 858-7815.

Beame

Continued from page 29

Trivial File Transfer Protocol server — a streamlined

FTP server — and a multithreaded Usenet reader that supports the Network News Transfer Protocol (NNTP).

"I'm very interested in the PC-based World-Wide Web and Gopher servers," said Chris Smith, data communications consultant with Southern Methodist University in Dallas.

"It's a real advantage to have these tools on a PC instead of a Unix machine," and to have the Gopher server, news reader and other features in one package, he added.

Previously, those tools were provided through a bundle of shareware and public domain programs instead of an integrated package.

BW-Connect 3.2

WWW and Gopher servers

BOOTP, which allows centralized

MAPI and MIME support

booting from a server

TCP/IP version: \$245

NFS version: \$349

Features

Pricing

Availability

December

The Gopher and WWW servers may arrive just in time to be deployed at Boston Scientific Corp., an engineering firm in Watertown, Mass., that is considering putting its catalogs on the Internet. The firm now uses

Beame & Whiteside's BW-Connect for NFS as its primary client file service, said Forrest Whitcher, a senior engineer at Boston Scientific.

BW-Connect's new electronic mail support includes compliance with the Multipurpose Internet Mail Extensions (MIME) standard for sending multimedia E-mail as well as Microsoft Corp.'s Messaging Application Programming Interface.

New remote access security features include a

BOOTP server that will let workstations on a LAN boot from a central server.

©Beame & Whiteside: (919) 831-8989.

GRAPHIC BY TERRI MITCHELL

Comdex

Continued from page 29

about \$99 and marketed by Arcada directly in early 1995, said Anthony Bautista, director of Arcada's advanced desktop business unit.

The company also is readying a version of Backup Exec for IBM's LAN Server.

Other LAN-related Comdex announcements are: Andrew Corp. of Bothell, Wash., introduced TDLC Link Service, a twinaxial software driver that works with the company's adapter cards. The new driver connects Microsoft Corp.'s SNA Server to an IBM Application System/400, and eliminates the need for

token-ring or Ethernet adapters on the AS/400. The

driver runs with Andrew's Emerald Client Emulator card, which costs \$245.

■ Frye Computer Systems, Inc. and American Power Conversion (APC) last week said they have linked Frye's network management utility and APC's uninterruptible power system (UPS) management software. The Frye Utilities for Networks NetWare Early Warning System 1.51 and APC's PowerChute Plus 4.2 software now provide a central console for Novell, Inc. NetWare network managers to monitor both network and UPS performance.

■ On Demand Software & Services, Inc. next week will announce Version 3 of its LAN Printer Switch. The new version integrates with On Demand's WinInstall networked software distribution application, allowing for easy installation and configuration of new printer drivers on users' desktops. It is available now for \$395 per file server.

QLogic Corp. of Costa Mesa, Calif., announced a line of SCSI Adapter cards for Peripheral Component Interconnect (PCI)-based computers. The FastSCSI IQ PCI line includes cards for servers and workstations, including those based on Reduced Instruction Set Computing processors. Pricing starts at \$249 for the server cards.

OArcada: (800) 327-2232; Andrew: (800) 776-6174; Frye: (617) 451-5400; On Demand: (813) 261-6678; QLogic: (800) 867-7274.

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- A top-ten South Korean corporation uses the savings from voice over frame relay to establish MIS as a profit center and resell services to other business units.
- ♠ A Florida-based company arranges time-share exchanges for resorts worldwide. ACTnet improved service to its 500,000 members and saved 35-45% on telephone bills as well.
- The largest bank in South America built its entire international network encompassing 43 sites in 20 countries on four continents with ACTnet. After dismantling a \$960,000 TELEX network, they save millions of dollars (U.S.) on international telecommunications annually.

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Times

are

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It's a complete range of hubs to help LAN managers control their spreading, evolving networks.

In selecting a hub, it is critical to determine which one fits your current requirements, yet is flexible enough to grow with your changing needs. To make that decision, we suggest you consult with one of the networking experts at IBM Direct.

This brochure highlights a sampling of IBM's hub family, but virtually the entire product line is available through IBM Direct. Your IBM Direct specialist will quote you the latest, most competitive prices on IBM hubs. Be sure to ask about our special introductory offer of 25% off on selected new models!

At your convenience, you can get the information you need *and* place your order over the phone. IBM Direct lines are open 8 a.m.- 8 p.m. (ET), Monday through Friday. Call today: 1 800 IBM-CALL (1 800 426-2255).



New from IBM: Intelligent Ethernet and Token-Ring hubs.

Given the explosive growth in networking, it's no surprise that LAN administrators need help managing their environments.

IBM introduces three outstanding new helpers: the IBM 8224 Ethernet Stackable Hub and the IBM 8230 Token-Ring Controlled Access Unit (Models 3 and 13).

These intelligent hubs bring cost-effective, centralized management to the smallest workgroups. And their modular design allows them to grow as you grow. All models support SNMP network devices, so you can monitor and control remote workgroups from a single workstation with programs such as NetView®/6000.

1800 IBM-CALL

Affordable hubs for w



8224 Ethernet Stackable Hub

The new IBM 8224 is a premier remote site and workgroup Ethernet hub with stackable units of 16 10BaseT ports each, plus an optional media expansion port that can connect to an existing 10Base2, 10Base5, or fiber Ethernet network.

An 8224 Model 1 is an unmanaged (yet manageable) unit that can be stacked up to ten together in a standard rack or on a desktop. Model 2, with an SNMP agent, can manage a stack of nine Model 1s, to provide a total of 170 ports. And, unlike most competitive hubs, stacked units can be separated by as much as 250 feet. The 8224 also accommodates LAN growth with cascading through the media expansion port. To alleviate congestion, you can also segment an 8224 stack to isolate bandwidth-hungry servers and workstations.

The 8224 supports out-of-band management of a remote site via SLIP protocols. It supports SNMP MIB II, the hub repeater MIB, and the Novell® Repeater MIB, with management by DOS or AIX® applications, and SNMP over IP and IPX for management in a TCP/IP network and Novell NetWare® Management Station. For mission-critical applications, a second Model 2 can provide management redundancy.



8222 6-Port 10BaseT Workgroup Hub

Now you can add an entire workgroup to your LAN without rewiring. Ready to concentrate inexpensive, twisted-pair wiring, the IBM 8222 allows you to link as many as seven PS/2® or PS/ValuePoint™ computers or compatibles to a new Ethernet 10BaseT LAN. Six additional computers can be linked with each 8222 cascaded through either AUI or 10BaseT ports.

In addition, the 8222 hub automatically disables (partitions) any port connected to a station causing repeated collisions, then re-enables the port when the condition clears.

orkgroups of all sizes.



8228 Multistation Access Unit

The IBM 8228 is a reliable, cost-effective hub for quiekly and easily connecting up to eight devices to a 16 or 4Mbps Token-Ring network. This passive unit is ideal for intereonnecting with other hubs to ereate larger networks using IBM Cabling System (ICS) connectors.

It takes up very little real estate and can be located in a wiring closet, on a desktop, on a wall, or in a standard 19-inch rack. The 8228 offers Ring-In/Ring-Out (RI/RO) ports for added flexibility. It also supports STP and UTP cabling.



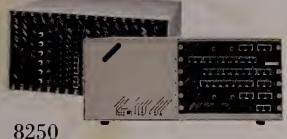
The new IBM 8230 Token-Ring Controlled Access Unit (Models 3 and 13) brings intelligent manageability to small workgroups at a very competitive price per port. These newest members of the IBM 8230 family of intelligent concentrators also offer granularity and modularity that make them remarkably versatile and expandable units.

A new 8230 can perform as an affordable, entry-level workgroup concentrator for just a handful of devices or as a completely managed, full-function, 80-node hub with dual ring redundancy. You can configure it with 2-, 3-, or 4-port Lobe Insertion Units (LIUs) that plug easily into the base unit for more port capacity as needed. Also available are 20-port Lobe Attachment Modules (LAMs) and remote 16-port LAMs for linking network devices a full 200 meters from the base unit.

With a new 8230, you can manage your Token-Ring LAN via LAN Network Manager, or an SNMP manager such as NetView/6000. Enhanced error and status displays help you identify problems fast. And for LANs requiring extra reliability, an optional dual ring redundancy feature is available for use with Ring-In/Ring-Out modules.



performance choices that fit expanding networks.



Multiprotocol Intelligent Hub

The advanced IBM 8250 is versatile enough to protect your current LAN investment and serve as the cornerstone of your network for the future. An 8250 lets you create and connect LANs, change configurations, switch users and perform other tasks without major rewiring.

Build the 8250 system that fits your environment with your choice of more than 50 modules (concentration, interconnection and management), plus powerful management via NetView/6000.

The 8250 simultaneously supports Token-Ring, Ethernet and FDDI topologies over a wide variety of media. For future upgrades or changes, just add new "hot-pluggable" modules to your existing hub.

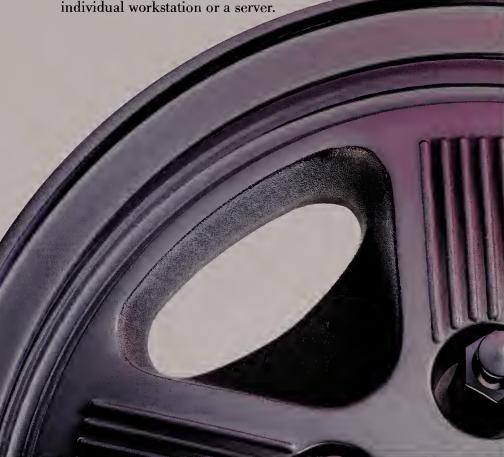
Management options include centralized or distributed, out-of-band locally or remote, in-band through SNMP, and remote log-on via TELNET from a TCP/IP station.

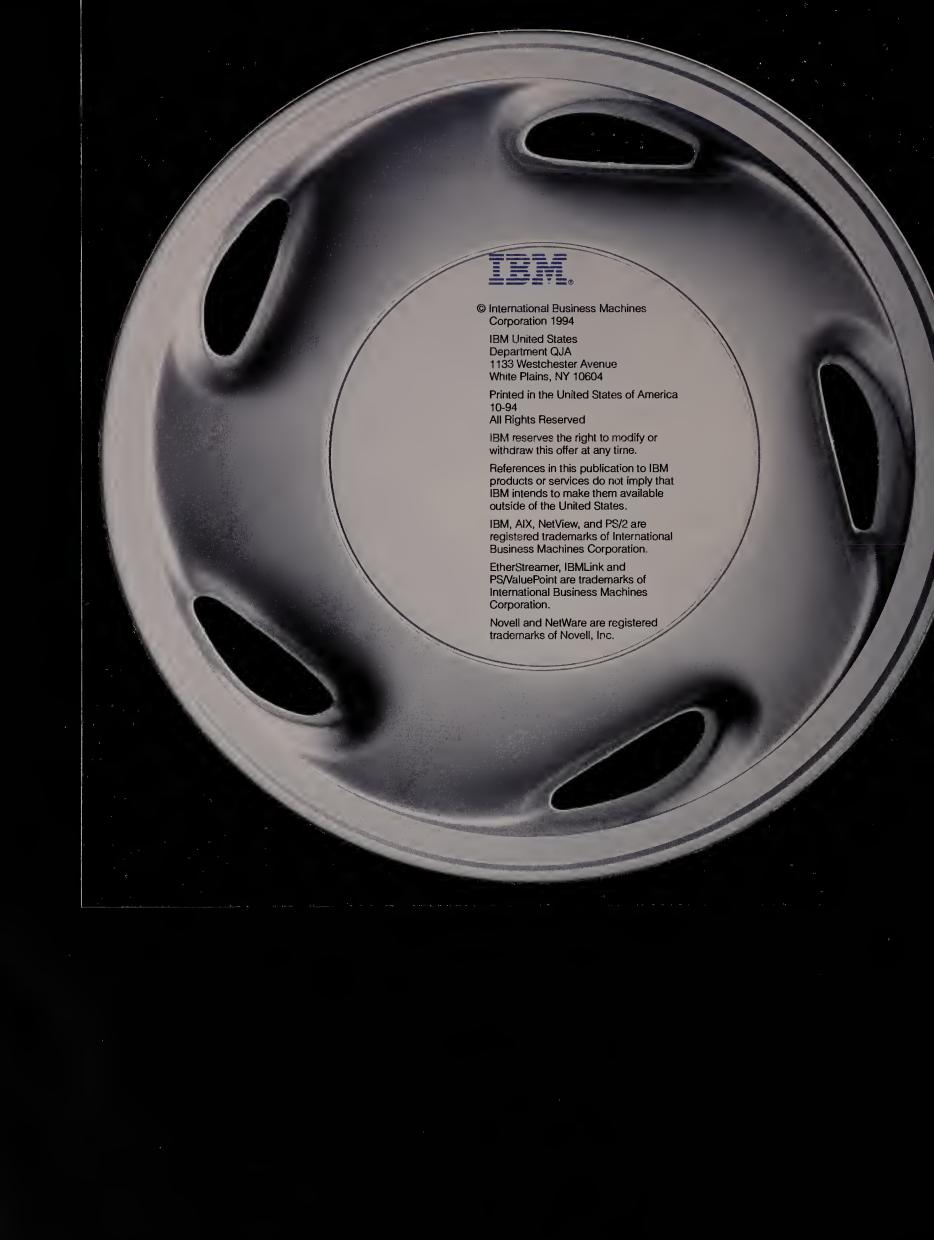
8250s also include fault-tolerant features and redundancy to keep client/server LANs in mission-critical applications up and running in the event of problems or hardware failure.



8271 EtherStreamer Switch

Is your Ethernet LAN getting clogged? The IBM 8271 EtherStreamer™ Switch can boost network performance at a very low cost per port. This high-performance, standalone device interconnects as many as eight I0BaseT Ethernet LAN segments or a single node, transports traffic at full media speed, and extends network bandwidth from 4 to 8 times that of a single Ethernet segment. When coupled with our full-duplex EtherStreamer adapters, you can now offer 20Mbps Ethernet performance for an





NET RESULTS

by Mark Gibbs

Apple, IBM, Warp-ed thinking and Thanksgiving

hanksgiving looms large in our minds at this time of the year.

Ah yes, the season of fruitfulness, mellowness and eating more turkey an the mind and stomach can comfortably

This whole ritual came about when the Pilrims decided that they had much for which to e grateful in their settling of the New World.

With the help of the Native Americans, the ilgrims slaughtered a few turkeys, whipped p some mashed spuds and invented pumpkin

Subsequently, the Pilgrims went and hafted the Native Americans and relegated

nem to the least esirable land.

The Pilgrims gave up" some eservation land, out as someone of great wit once aid, "The meek hall inherit the earth, but not the nineral rights hereunder.'

There's hankfulness for

There is an nteresting paral-

el to this in the computer business.

Apple Computer, Inc., IBM and Motorola, Inc. have recently announced their goal to develop a common hardware platform based on the PowerPC chip.

This Holy Grail of computing platforms is ntended to allow concurrent support of multiole operating systems on a consistent hardware architecture.

The platform is targeted to support OS/2, Macintosh OS, Net Ware, CP/M-80, MVS, RSX-11M and . . . alright, I was lying after NetWare, but I think you get my point.

Unless the cartel has discovered a whole new way of working cooperatively in engineering, developing and marketing, it's not kidding anyone but itself.

So what does Big Blue get out of the deal? Well, unless its main distribution channel going to be via flying pig, nothing. Zip.

Why? Because IBM has shown us time and ime again that it simply does not understand he PC market.

Take a look at IBM's history in the PC market it created. On second thought, don't; it is far too gruesome.

Today, the IBM offerings are still a mess. and now IBM has had the recklessness to aunch OS/2 Warp as if it were a real consumer product. IBM should face it: The company stands little chance of getting more than a small share of the desktop market with Warp.

I think that OS/2 Warp was miswritten; it should have been OS Too Warped.

Warp doesn't yet have and is unlikely to acquire the breadth of applications, driver and network support of, say, Windows 3.1 in any reasonable time scale. And Windows 95 is just

around the corner.

Now with the PowerPC Alliance - as IBM, Apple and Motorola have promoted it — Motorola is simply along for the ride. If the other that the hardware reference platform specification is ''loose by design.''

Pardon? Yeah, that's just what we need. Another moving target of technical self-indulgence in our inventory of chaos that we laughingly call our networks.

guys build a market, Motorola wins, too.

IBM will certainly define a market, but given the available information on the alli-

ance's plans, we're not even looking at a fixed

set of standards. IBM's own spokesman said

As for Apple, it wins whether or not IBM has success with the PowerPC architecture.

Apple gets more development effort toward the PowerMac line, which gains improved performance and the ability to support other operating systems (notably Windows) and applica-

This deal more or less gives Apple control of a new world, while the natives of IBM are exiling themselves to the reservations — and giving up the mineral rights.

Apple should have a great Thanksgiving.

◆Gibbs is a consultant and writer in Ventura, Calif. He can be reached at (800) 622-1108, Ext. 504, or on the Internet at mgibbs@rain.org.

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Norman Meyrowitz. Director, Core and Strategic Technology, Macromedia, Inc.

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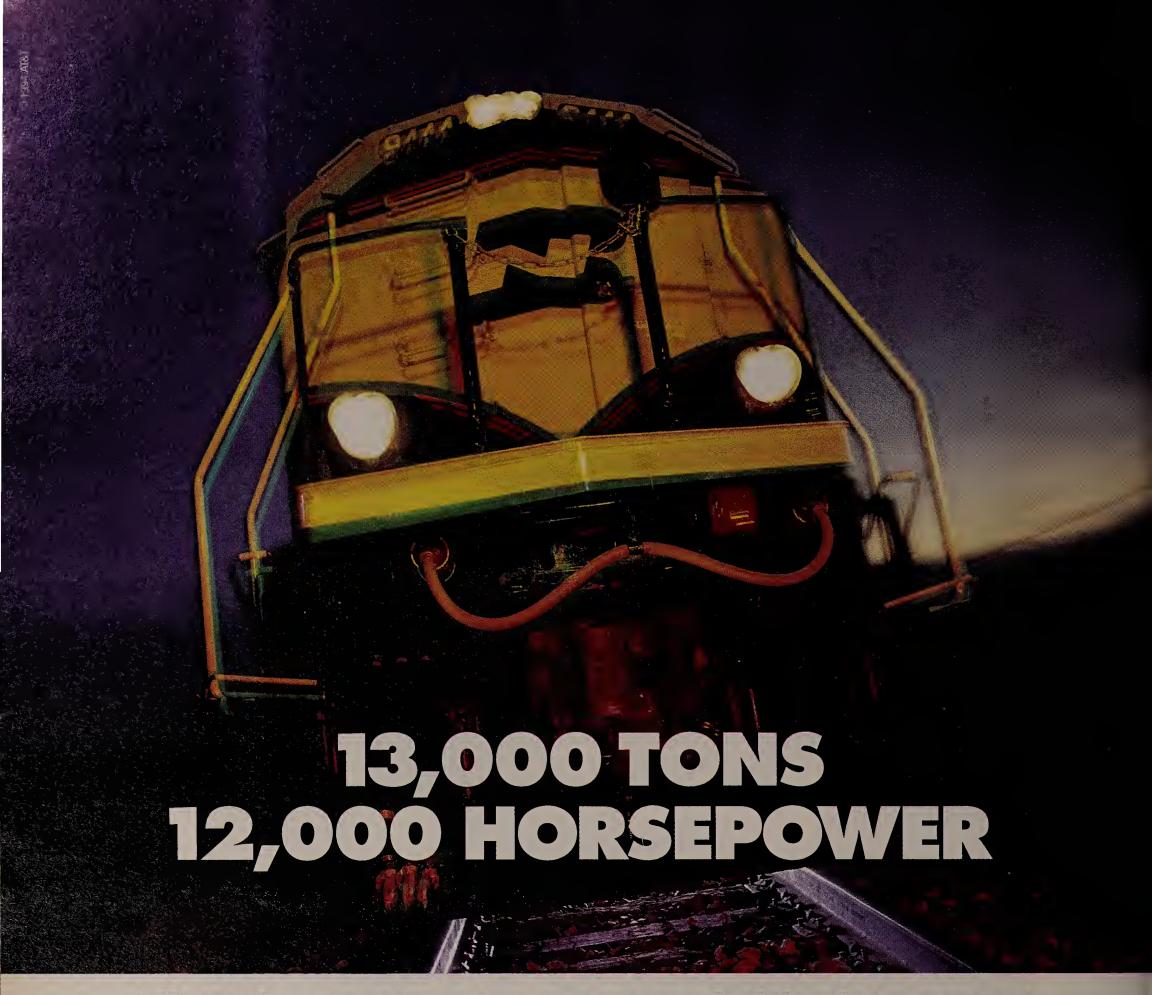
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GLOBAL SERVICES

Voice and Data Services, Mobile Computing, Regulatory Issues and Voice CPE

Ameritech Corp. has slashed local service prices in Illinois, effective immediately. The company has eliminated the extra monthly charge for touch-tone service, and said its price reductions annually will save businesses \$32 million, long-distance companies \$12 million and consumers \$49 million.

MCI Metro, the local access subsidiary of MCI Communications Corp., has purchased Digital Equipment Corp.'s New England fiberoptic network. Digital's 240-mile system was built to support data, imaging, videoconferencing, computer-aided design and manufacturing and voice services. Like other competitive access providers, MCI Metro is already certified as a local telephone provider in Massachusetts.

Seattle-based Mid-Com Communications, **Inc.** — until now, the nation's largest switchless reseller of carrier services - is changing to a facilities-based carrier. It wants to offer local access, voice mail and fax services in addition to long-distance service resold from Sprint Corp., WilTel and AT&T. Mid-Com has purchased eight switches from American Telephone Network, Inc. (ATN) of Jackson, Tenn., and said it will soon buy six more switches from ATN's supplier.

GTE Mobilnet, Inc. said it is trialing Cellular Digital Packet Data (CDPD) networking in the Raleigh/Durham, N.C. area based on Northern Telecom, Inc. equipment. The company is already running CDPD in the San Francisco Bay area on equipment from Hughes Network Systems and intends to launch commercial services later this year in Houston on an AT&T Network Systems platform.

GTE SONET service promotes interenterprise networking

Native LAN speed, T-1 channels provisioned with no mileage charge.

BY DAVID ROHDE

Sarasota, Fla.

GTE Telephone Operations is making a major push into interenterprise networking by using SONET equipment to provide nondistance-sensitive, high-capacity within regional calling areas.

The new service has been introduced to hospitals in Florida as a way for them to share diagnostic images. It will be offered in California by the end of the year, with more states due to come on-board next year, said Stacy Wachtel, consultant to GTE Florida's Market Response Group.

GTE is using a vertical market focus to bring the service to network managers' attention through communities of interest. "It's available to any industry, but we feel it's particularly well suited for the medical industry," Wachtel said.

Under the service, called MetroLAN, a Synchronous Optical Network fiber link is brought directly into the customer's premises, where GTE places dedicated fiber termination equipment.

The equipment includes AT&T Network Systems' DDM 2000 fiber-optic node, which functions much like a channel bank, dividing a broadband SONET OC-3 channel into, say, T-3 circuits. A similar fiber-optic node is also placed in GTE's central office.

The premises equipment also includes a Magnum100 hub/multiplexer from ADC

Fibermux. The Magnum further breaks down the channel into 10M bit/sec Ethernet LAN connections or creates T-1 circuits at 1.544M bit/sec.

Before a tariff for the service took effect on Oct. 30, it was provided on a contract basis to Sarasota Memorial Hospital here to link it with Venice Hospital 20 miles away.

two hospitals is used for traditional LAN traffic such as electronic mail, Murphy said. GTE provides the second link at a low cost, and neither link — nor any T-1 connection the hospitals might want to establish — has any mileage-sensitive charge (see graphic).

The prices will vary somewhat depending on the total amount of bandwidth requested by the customer and the

length of the contract.

GTE will offer the same approach to hospitals in many markets by including MetroLAN in a series of solutions, according to Ellen Pfeiffner, medical markets manager at GTE national headquarters in Irving, Texas.

Under an umbrella called Med-Net, for example, MetroLAN will be packaged with wireless calling services within hospital campuses and videoconferencing equipment from PictureTel Corp., she said.

Another vertical market GTE may target is the banking industry.

In addition, county governments are interested in the service for police and judicial applications, according to Paul Sepulveda, also a consultant to GTE Florida's Market Response Group. Local governments could use the SONET service to share criminal record information and to perform video arraignments, he added. **Z**

On the ring

GTE Florida's monthly charges to Sarasota Memorial Hospital for bringing SONET fiber-ring transport service onto the premises, including all equipment:

- Basic service charge to be placed on the ring:
- First 10M bit/sec link:
- \$2,000 \$750
- Additional 10M bit/sec links: • T-1 (1.544M bit/sec) links:
- \$150 each

A T-1 circuit from GTE Florida's regular tariff costs \$900 per month for a 20-mile circuit.

SOURCE: SARASOTA MEMORIAL HOSPITAL, SARASOTA, FLA.

The two facilities now effectively have a joint laboratory and share images over a native Ethernet link, even though the central processing unit for the lab's computer is here, said Tom Murphy, supervisor of net services for Sarasota Memorial. "It looks like Venice is sitting on our LAN," he added.

A second 10M bit/sec link between the

McCaw runs slick CDPD demos

Focuses on horizontal apps, names channel partners at Comdex.

BY JOANIE WEXLER

Amidst the mobile computing cacophony at Comdex/Fall '94 here last week, Cellular Digital Packet

Data (CDPD) applications of a horizontal flavor hummed along in the McCaw Cellular Communications, Inc. booth.

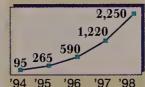
At the same time, though, the nation's largest cellular carrier made wireless data services channel partnership announcements with a selection of value-added resellers and integrators that underscored the vertical nature of wireless wide-area data networking to date, analysts said.

Initial McCaw channel partners include ACT, Inc., Active Voice Corp., Aspect Technologies, Buypass Corp., General Programming, Inc., Mobile Computing Solutions, Perot Systems Corp., Remote Data Systems, SEI Technologies, Inc., Software Corporation of America (SCA) and Symbol Technologies, Inc.

Packet-switched (Thousands of subscribers)

Airborne services

take flight



'94 '95 '96 '97 '98

Together, the subscriber bases of CDPD, other cellular packetswitched services, RAM and ARDIS are poised to explode over the next four years.

SOURCE: BIS STRATEGIC DECISIONS NORWELL, MASS

The partnerships intend to encourage more systems integrators to add wireless to their arsenal of enterprise computing and networking tools, said Kendra Vander Meulen, vice president and general man-

ager of McCaw's Wireless Data Division.

She said a goal of the channel program under which McCaw aims to sign on the nation's top 200 value-added resellers over the next two years — is to allow those integrators already working with the Fortune 500 to add wireless products and services to their portfolios.

However, with the exception of Perot Systems, the initial partners tend to be wireless specialists already, as opposed to having a more general enterprise bent, noted Ira Brodsky, president of Data-Comm Research Co. in Wilmette, Ill.

"It's not as though the country's biggest integrators are now all doing wireless," he said.

So far, there hasn't been sweeping See Demos, page 42

Wireless watershed

Wireless and mobile computing were pervasive on the Comdex floor. Among the developments:

■ McCaw Cellular Communications, Inc. introduced its first wire-

less product under name since the two companies merged.

receiver, with 128K bytes of dynamic memory, is reportedly the only receiver of its kind capable of displaying graphics.

FlashPoint combines personal messaging with the ability to access information services and interactive networks, as well as to connect to personal computers and personal digital assistants.

Lante Corp. announced and demonstrated a Cellular Digital Packet Data (CDPD)-enabled version of

Lotus Development Corp.'s Notes groupware product.

■ Wireless systems integrator Racotek, Inc. announced that it has signed a reseller agreement with RAM

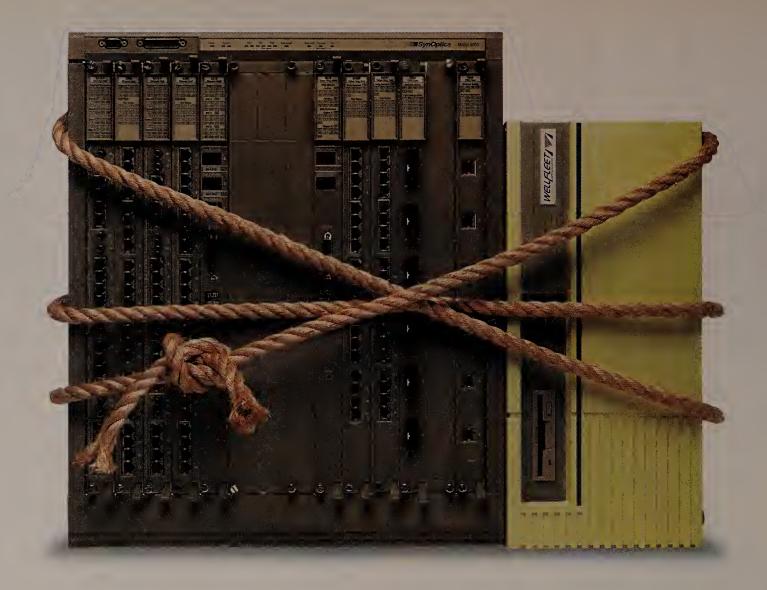
Mobile Data. Apthe AT&T brand @COMDEM/Fall'94 plications written for Racotek's Raco-

Net server operating system can now The FlashPoint wireless data link to the RAM packet radio network — in addition to the specialized mobile radio nets already supported — with no changes.

> Research in Motion launched a hand-held terminal, available now, that supports the following wireless applications across the RAM packet radio net: messaging, credit card authorization, vehicle location and alphanumeric paging.

> Pricing is \$1,000 when purchased in quantity.

BY JOANIE WEXLER



BOUND BY NECESSITY

Customer needs and changing technologies have brought many networking vendors closer together. Unfortunately their combined efforts give you only so much performance before product limitations put the squeeze on your network operation. Once ATM and advanced network management services become standardized, you may be left in a bind of your own, having to retool or replace components to keep up with user demands.

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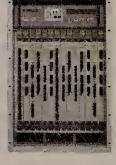
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RATE & TARIFF MONITO

by Eric Paulak

Less expensive directory assistance

CI's foray into the directory assistance market with its 1-800-CALL-INFO may have been ill-conceived, but the

rationale behind the move was sound

America spends an estimated \$1 billion on directory assistance a year, and that figure is growing 10% annually.

The problem with 1-800-CALL-INFO is that it doesn't save you any money over calling a 555-1212 operator.

And now AT&T is getting in on the act, even after lambasting MCI for its directory assistance service. AT&T has filed for its own nationwide directory assistance service to be offered under its 1-800-CALL-ATT program.

The only difference between the two is that AT&T will not bill to your local telephone number the 75-cent charge for the call or the cost of connecting the call. They require a credit card or a calling card.

That means AT&T won't get the same bad

publicity that MCI received for its directory assistance service because businesses can't get hit by unwanted directory assistance charges. However, AT&T's service is also bound to fail unless the carrier gives people a reason to employ it.

The best reason to use a service is that it's cheaper, but neither AT&T's nor MCI's directory assistance service offers any savings. There are, however, some services that do.

One is from Easton, Pa.-based InfoNXX, which is going directly to businesses offering

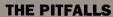
an alternative directory assistance service.

Once you make a deal with InfoNXX, it gives you a phone number to put into your PBX's translation tables so that anytime someone in your company dials a 555-1212 number, it will be routed to one of InfoNXX's operators, who then

look up the number and give it to you. The cost of each lookup is 56 cents per call a 25% savings over the 75 cents all the longdistance carriers charge. So if you have 100 employees in your company that make an average of just one directory assistance call a day, you're looking at a savings of \$19 a day or \$4,940 a year.

If you're in the investment or banking industries, that number can be significantly higher because brokers and traders make even more directory assistance calls.

One of InfoNXX's brokerage customers, for example, was paying its long-distance carrier \$33,000 a month on directory assistance. Now they're paying InfoNXX \$25,000 a month.



Now the drawbacks: InfoNXX is using a proprietary database it has compiled from several sources that doesn't have all possible numbers or the most current numbers. If they can't find a number, InfoNXX's operators call the Bell company operators.

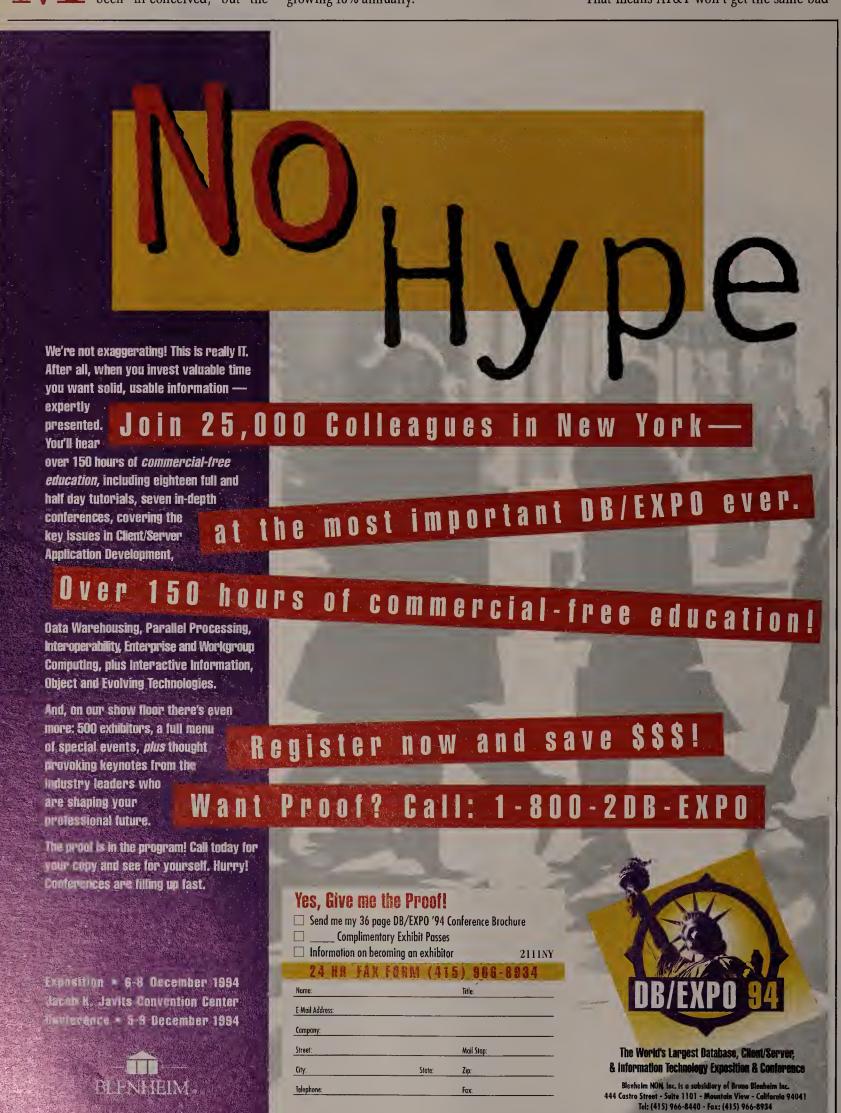
This leads to longer calls. And because you are dialing InfoNXX's number and not a 555-1212 number, you're also paying for the call.

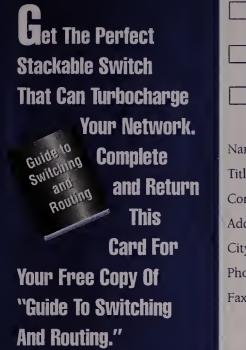
InfoNXX's customers, however, say the average directory assistance call duration is 34 seconds. That adds 4 to 9 cents to the cost of the service, depending on your rates. So the total cost is actually 60 to 65 cents per directory assistance call — a savings of 10 to 15 cents.

But that assumes you are paying low longdistance rates. If you are signed up for a service that has 1-minute billing — such as basic 1+ service — or if you pay mileage-sensitive rates and are on the West Coast, you probably pay at least 20 cents per minute. InfoNXX's service would then be more expensive than standard directory assistance.

What does all this mean? Just like with other long-distance services, if you're big enough, you have an alternative to the 75-centper-call charges. The service may not be as accurate as the Bell companies' directory assistance. But if you can save \$8,000 a month, a few wrong numbers is a very inexpensive price to

→ Paulak is associate publisher for the Center for Communications Management Information, a provider of rate and tariff information in Rockville, Md. He can be reached at (301) 816-8950, Ext. 327.





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SMDS, switched LANs win battle for school net

BY DAVID ROHDE

Fairfax, Va.

David Jensen doesn't get sold on a fast-packet service merely because it can economically handle data traffic at moderate speeds.

By the time the manager of network planning and engineering at George Mason University finished evaluating six bids for his multicampus network overhaul, Jensen had discarded his original idea of a frame relay net in favor of Switched Multimegabit Data Service at speeds up to 10M bit/sec -- and still got a price that made people sit up and take notice.

George Mason's new \$11.8 million data and voice

recently awarded to Bell Atlantic Network Integration, Inc., includes not only SMDS, but also end-to-end Ethernet switching for campus LANs (see graphic).

It incorporates some 588 miles of new fiber cabling between buildings and in-building risers, extensive horizontal copper wiring and a new \$2.5 million telephone system.

The phone system includes several Meridian private branch exchanges from Northern Telecom, Inc. to replace more than \$1 million in annual expenditures on Centrex service.

The new PBXs are expected to give the fastgrowing school with 22,000 undergraduates the ability to make moves,

adds and changes within a day, instead of the seven to 10 days it now takes.

This desire for flexibility also led toward SMDS and away from frame relay.

'One of the key points was any-to-any connectivity," Jensen said. "There were certain constraints with frame relay. We'd have to call the carrier each time we established a new connection.'

The connectionless nature of SMDS precludes the need for predefining permanent virtual circuits, as is the case today with frame relay and Asynchronous Transfer Mode.

That's important, Jensen noted, since an academic community can burn up circuits in a hurry. "We're downloading executable portions of code over the circuit, instead of just information," he said.

Additionally, students like to download data off a CD-ROM system in the school's main library over an intercampus T-1 line that also carries 12 voice cir-

'Sometimes response can be pretty painful,' Jensen said. "With frame relay, we'd be maxed out at T-1. With SMDS, we can [go to higher speeds] just by

ble and based on some type of tested and standards-based technology," said Jensen, who has been working on this project for "FDDI several years. appeared to be the only solution available back in the fall of 1993."

But when negotiations got down to two finalists --Bell Atlantic and AT&T Global Business Communications Systems, both of whom bested traditional systems integrators --- Jensen released them from the requirement that they propose products that were already shipping.

Angel Burkepile, a network engineer for Bell Atlantic Network Integration, suggested that translational bridging between an FDDI backbone and Ethernet segments inev-

itably would impair performance.

'But with frame switching, it's Ethernet all the way," she said, recommending the SynOptics 28000 series of Ethernet switches from Bay Networks, Inc., along with SynOptics 5000 intelligent wiring hubs.

"When I realized that you could get 100M-bit Ethernet switches for \$12,000," Jensen said, "that

Administrative Branch Law school campus campus center Cisco 1.7M bit/sec Bell Atlantic SynOptics 28104 4M-10M bit/sec Ethernet switch 100M bit/sec 28015 Ethernet switch

A desire for flexibility led George Mason to select an SMDS net infrastructure along with Bay Networks Ethernet switches, a setup that offers any-to-any connectivity and improved performance.

GRAPHIC BY TERRI MITCHELL

changing the adapters on the routers."

For the main campus LAN, Jensen also had a change of heart along the way. He chucked aside conventional shared 10M bit/sec Ethernet segments bridging to a Fiber Distributed Data Interface backbone in favor of end-to-end switched Ethernet.

"We wanted a high-speed network that was flexi-

Switching all the way

Demos

Continued from page 37

wireless support among the large integrators because wireless sales are more often made to departmental managers and business units for vertical applications, rather than to the corporate information systems department for widespread rollout, according to analysts.

AIREORNE APPS

On the demo side, McCaw development partner SCA had a wireless database access application running in the McCaw booth showing how real estate agents can look up multiple listings from a central database and get directions to properties from a mobile set-

Other applications demonstrated over McCaw's AirData CDPD service were wireless access to the Internet and Compu-Serve, Inc. nets, as well as credit card authorizations.

Most of the applications are already commercially available, said Craig Kairis, director of marketing at McCaw's Wireless Data

Also, McCaw and Compu-Serve, together with TechSmith Corp., announced a development partnership aimed at allowing to access corporate resources via McCaw's AirData CDPD or the CompuServe network using the same remote access application.

The move is one of several afoot from companies such as Motorola, Inc., MobileWare Corp. and Racotek, Inc. — to achieve application portability over diverse wireless and wired networks.

Notably absent was further word from McCaw on when it would have nationwide AirData service up and running.

"This is an admission that CDPD is not going to rush out and provide generic solutions for remote access," Brodsky said. For now, CDPD is going to be a citywide service, he predicted.

While heavy-hitting companies such as FedEx and American Airlines, Inc. are trialing McCaw's CDPD service, "no one is using AirData in production at this time," Kairis said. Z

ISDN AVAILABILITY

Switched services forum seeks unified database

BY DAVID ROHDE

San Jose, Calif.

An industry group is attempting to create an on-line service that would provide users with up-to-date availability data for ISDN and related services nationwide.

Meeting here earlier this month, the Switched Digital Services Applications Forum (SDSAF) reviewed proposals from two contractors selected as finalists to build the new database, which users would access for a fee via dial-up

Several telephone companies already are supplying ISDN availability information over the Internet (see graphic). At least one — GTE Telephone Operations — offers a toll-free line with an interactive voice responsebased faxback option that supplies availability data by area code and exchange.

But a recent survey of users by the Center for Communications Management Information (CCMI) in Rockville, Md., found that on a national basis, the information is too fragmented to provide much utility.

"They said it's there on the Internet, but it's often not up-to-date, difficult to deal with and in different formats," said CCMI Publisher George David at the SDSAF meeting.

WHO WILL BUILD IT?

As one of the two finalists, CCMI is proposing to build a database that

would allow a uniform search of ISDN availability by area code and exchange, by name of the telephone company's central office (CO) or by the Common Language Location Identifier (CLLI) code used by the telephone industry to identify COs.

CCMI, a provider of rate and tariff data, would add rate information to any availability query, with the information being updated weekly or monthly, David said. Access would be by SprintNet, Internet or toll-free 800 lines.

The other finalist is Bell Communications Research in Livingston, N.J. In its presentation to the SDSAF, Bellcore officials proposed to go beyond availability and rate information by offering a software package to help users determine how to configure ISDN in their networks.

The package, called ISDN Advisor, suggests solutions based on communications needs described by the user, said Naresh Sampat, a member of the Bellcore technical staff. It would provide information about applications, including large text or image file transfers, collaborative work on documents and videoconferencing.

The software displays a simplified picture of a typical hardware setup including ISDN adapters and the NT-1 devices that support the interface to the public network. Sampat also said ISDN Advisor would be set up to collect data on ISDN equipment and software so users could calculate the cost of service plus equipment.

Forum members seemed more interested in collecting information from the telephone companies than from customer premises equipment

"The real driver for this was the network element," said SDSAF President Jesse Carter, a product manager for SBC Communications, Inc., formerly know as Southwestern Bell Corp. "The CPE [information] could be

added later on.'

The database should include all flavors of ISDN, including Basic Rate Interface, multirate and Primary Rate Interface, Carter said. It should also include switched 56K bit/sec services and packet data services.

But whether all the major exchange carriers will contribute information is an open question, since ISDN availability information is not commonly included in tariffs.

And vendor data could prove useful to some. "It has taken me two months to get an [ISDN] order processed because of people not knowing what it is that I needed," said one end user attending the meeting.



GTE Telephone Operations,

which handles local telephone service in parts of 30 states, lists ISDN availability information by area code and exchange.

To access, telnet to: gteens.com. Logon: gteguest Password: dataline

Pacific Bell also offers ISDN availability information for California.

To access:

Point your WWW browser at http://www.pacbell.com. Or Gopher to connect to: gopher.pacbell.com.

Rohde can be reached via the Internet at drohde@world.std.com.

PERSONAL

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currently routing. You may need both.

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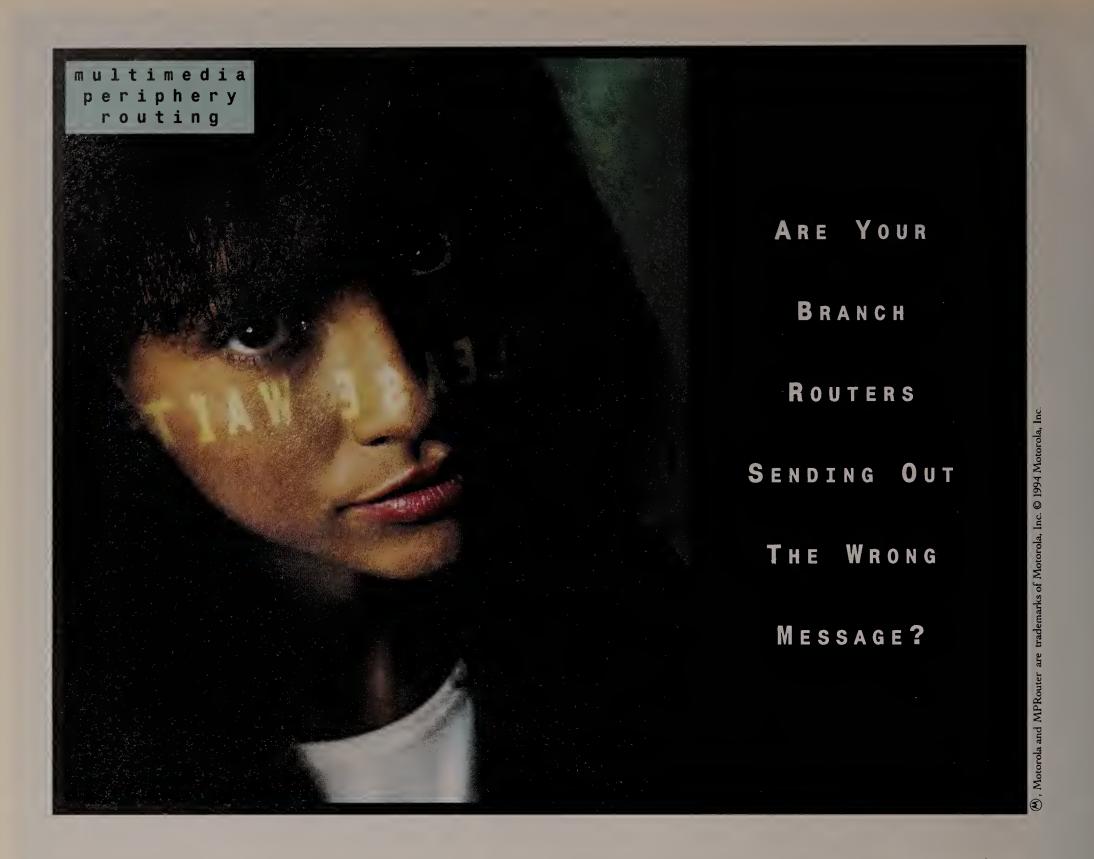
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MOTOROLA

CLIENT/SERVER APPLICATIONS

Distributed Databases, Messaging, Groupware, Imaging and Multimedia

BRIEFS

Alisa Systems, Inc. of Pasadena, Calif., last week announced Version 5.0 of its AlisaMail electronic mail switch, which uses a new message store based on Digital Equipment Corp.'s VAX virtual memory features to increase message delivery speeds.

The store is integrated with a user directory based on Sybase, Inc. OpenDirectory relational database technology. Also new is a directory synchronization system in which only changes, rather than entire directories, are sent across a distributed network.

The new version of AlisaMail, which has gateways for a variety of proprietary LAN- and hostbased E-mail systems, will ship in January. Pricing depends on the number of users and gateways supported; a 4,000-user license would cost \$80,000.

Alisa: (800) 628-3274.

Hitachi Computer Products America, Inc. of Santa Clara, Calif., last week announced that it has changed the name of its electronic mail directory line from Mosaic Works to SyncWare. The software provides directory synchronization between a variety of proprietary E-mail directories, such as those used by Lotus Development Corp.'s cc:Mail and Microsoft Corp.'s Microsoft Mail, including what is used by the Internet-based Simple Mail Transfer Protocol. Hitachi: (408) 986-9770.

Novell, Inc. last week announced document management software that complies with a new industry standard for linking clients and servers. Novell's GroupWare division said Version 4.0a of its SoftSolutions software adds compatibility with the Open Document Management application program interface (ODMA). ODMA lets developers use a common program interface for linking cli-

ents with document servers.

SoftSolutions will initially use ODMA to connect Windows desktop applications from Novell's PerfectOffice suite with Action Technologies, Inc.'s workflow technology and Watermark Software, Inc.'s document storage server.

Version 4.0a starts at \$495 per server and \$195 per client.

Novell: (800) 861-2507.

Dun & Bradstreet Software recently announced Customer Select, a three-tier maintenance and support plan for users of its host-based client/server and personal computer- and LAN-

based applications.

The Basic Plan consists primarily of on-line help, though it also includes telephone support on a cost-per-incident basis. The Standard Plan extends telephone support services to 24 hours per day during weekdays as well as emergency weekend support. The Premium Plan not only offers 24hour telephone service, but provides customers with credits toward D&B Software education programs, user group registration and consulting services.

The service plan is based on the price of D&B Software applications being supported, ranging from 14% to 18%. The new offerings will be available in January.

Universal in-boxes await more standards

Vendors working together to link voice, E-mail, fax, EDI into one interface.

BY ADAM GAFFIN

One day users could have a single interface to all of their messages, whether they originally came in as electronic mail, a fax, a voice message or even in electronic data interchange form.



They will be able to have messages in one format automatically converted to another, an intelligent agent sort their mail based on the importance of the sender or

topic, and have messages routed to remote locations.

Those, at least, are the ideas behind universal in-boxes.

Committees under the general leadership of the Electronic Messaging Association (EMA) are hoping to develop the standards needed to bridge the once-disparate worlds of E-mail, voice, fax, video and EDI. Once those standards are in place, vendors can begin building the technology to link them.

Behind the scenes of a simplified user interface will come a complex and intelligent set of network applications that will be

able to figure out how to best get incoming messages to a user, said Ron Rassner, chairman of the EMA's LAN messaging committee and a vice president at Creative Networks, Inc., a Palo Alto, Calif., consulting firm. Rassner will give an update on the committee's work at the E-Mail World conference in Boston on Dec. 1.

THE PROBLEM

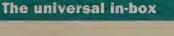
Today, users receive information in a variety of formats via a plethora of interfaces. From touch-tone phones to E-mail soft-

ware and EDI translators, each interface has its unique command set to be mastered, its own directories and its own file system.

The problem is compounded when users go on the road because of issues related to how they get information forwarded to them: For example, do they dial in to their home office LAN or have an assistant redirect a fax to their hotel room?

"The receiver today has no control over how that information is going to be received," Rassner said.

See In-box, page 49





1. Messages are sent to server in different formats. 2. Server, programmed with user-defined rules, filters messages and converts them into medium preferred by user. 3. Messages are routed to intended recipient.

single mailbox to retrieve all

GRAPHIC BY TERRI MITCHELL

Companies to release deluge of messaging products at show

BY JODI COHEN

Several companies are set to make a barrage of messaging product announcements — including new electronic mail management and directory synchronization offerings — at the upcoming E-Mail World show here next week.

Some of the expected announcements include:

■ Infinite Technologies, an Owen Mills, Md.-based vendor of electronic communications and LAN soft-



ware products, will announce an E-mail gateway called Con-ORL D nect2MSMail. The gateway lets Microsoft Corp. Microsoft Mail

users communicate with users of Messaging Handling Service (MHS)-based systems and provides interoperability among Connect2 or Novell, Inc.'s MHS-based E-mail systems.

Connect2MSMail in a base configuration costs \$399 per user, while directory synchronization costs an extra \$600. Additional licenses can be purchased for \$199 each or in a pack of 10 for \$1,499. Connect2MSMail will be available by December.

Infinite: (800) 678-1097.

■ National Semiconductor Corp. will team with Datamedia Corp. to unveil a turnkey hardware/software system to provide enhanced security for Microsoft Mail Version 3.2 networks. National will combine its

See E-Mail World, page 48

Borland promises speedy development with Delphi95

BY BARB COLE

Las Vegas

Borland International, Inc. last week announced a new client/server application development tool called Delphi95 that is positioned to compete against tools from Gupta Corp. and Powersoft Corp.

The object-oriented tool, introduced by the Scotts Valley, Calif., firm

Tool trio Product Price **Availibility** Borland's Delphi95 NA 1Q '95 Software Development \$2,950 Now Tool's AppBridge Professional 3.0 Blue Sky's WinMaker December \$995 Professional 6.0 NA = Not available GRAPHIC BY TERRI MITCHELL

at Comdex/Fall '94 here, will complement Borland's line of desktop and server database products.

William Dunlap, associate product manager for languages at Borland, said Delphi95 will be 10 times faster than most development tools as it generates compiled code, opposed to code that must be compiled before run-time.

Delphi95, which is based on Bor-

land's Object Pascal language, will allow developers on Windows workstations to build Windows applications. Those applications will have native access to data stored in Borland's own InterBase database as well as in databases from Oracle Corp., Sybase, Inc. and Informix Software, Înc.

Borland plans to roll out two versions of Delphi95. Delphi95 Profes-

> sional will be geared at developers building departmental applications. An Enterprise Edition will include native drivers to several databases, team development features and a copy of ReportSmith, Borland's graphical query and reporting tool.

Pricing for Delphi95 was not available, but Borland said its Professional edition would be priced competitively with PowerBuilder Desktop, which sells for \$249.

Borland also rolled out new versions of InterBase for Windows NT and Novell, Inc. NetWare servers. Previously, it ran only on Unix servers. The

See Borland, page 49

ELECTRONIC COMMERCE

WWW-based catalog will allow comparison shopping

What's ahead

OCM is planning for four services:

PC Advisor — Catalog application

Access Online Expo - WWW database

and storefronts

based on Microsoft

aimed at trade shows

Power Buyer — WWW database

Online Pages — WWW documents

BY ADAM GAFFIN

Southborough, Mass.

Start-up Online Computer Market, Inc. (OCM) last week took the wraps off a World-Wide Web (WWW) service that will eventually let computer purchasers compare offerings from various vendors and then complete an electronic order form to buy their preferred

The WWW is a set of server-based databases — connected via hyperlinks — available over the Internet and other TCP/IP networks. Users connect to these databases via client-

based browsing software such as Mosaic.

OCM hopes to attract a variety of vendors to provide product information for its initial WWW-based dubbed service, Power Buyer, which is set to roll out by January 1995.

Power Buyer will

consist of SQL Server and WWW software on a single Windows NT server platform connected to the Internet. When users connect to Power Buyer, they will be able to fill out forms specifying which products they wish to buy. The system will then respond with a table of products that fit the specifications, from which users can seek more information or place an on-line order.

As of last week, computer resellers PCs Compleat, Inc. and Green Pages had agreed to participate in selling their wares via the service, and more companies are nearing agreements, according to OCM President David

Initially, OCM customers might need to rely on faxes to submit orders to vendors

In general, the Internet market has yet to settle on standards for transaction security. The WWW, initially set up to distribute infor-

mation to physicists, lacks the security measures needed for business transactions. But companies and consortia are working on methods to build security atop WWW protocols, and Reske said he hopes to chose one of these methods within the next three months.

In addition to providing the product catalog, OCM will sell space on its WWW server to other firms. The firm is already working with Digital Consulting, Inc., an Andover, Mass., trade show producer, and Microsoft Corp.'s Northeast regional office in Waltham, Mass.

OCM: (508) 480-0577; WWW Uniform Resource Locator: http://www.ocm.com.

because OCM has yet to settle on a particular method for encrypting authenticating incoming orders via the Internet, Reske said.

E-Mail World

Continued from page 47

PersonaCard 100, a PCMCIA card based on the company's iPower data security technology, with Datamedia's SecureExchange software to provide a high level of data security for E-mail and messaging applications. A PersonaPort Card Reader Station will be available in January for those personal computers that lack PCMCIA slots. The station will cost \$209.

Pricing for the PersonaCard 100 will begin at \$249 and include the software needed for one user. It will be available in January 1995.

National: (408) 721-2448.

■ Baranof Software, Inc., a Watertown, Mass. based software company specializing in E-mail management products, will announce Mail-Check 2.5. The software now has new graphical user interface-based displays, allowing administrators to keep multiple views of their messaging networks. Version 2.5 also includes customizable icons to represent messaging components and hierarchical network group-

MailCheck 2.5 will be available Dec. 1 for \$295. Upgrades will cost at \$99 per system.

Baranof: (800) 462-4565.

■ Linkage Software, Inc., based in Toronto, will extend its OS/2-based Linkage Directory Exchange (LDE) directory synchronization software to include directory exchange agents (DXA). DXAs keep track of changes made to mail directories and send the changes along to the Directory Exchange Manager, which allows communication among various types of mail systems. Linkage will announce DXAs for three different messaging networks: Hewlett-Packard Co.'s HP OpenMail, Fischer International Systems Corp.'s EMC2 and IBM's Professional Office System (PROFS). Linkage will also announce general availability of its gateway for communication between Systems Network Architecture Distribution Services (SNADS) systems and Control Data Systems, Inc.'s MailHub X.400 messaging hub.

Pricing for the LDE product, including a Directory Exchange Manager and two DXAs, is \$25,500 for more than 2,000 users. The OpenMail DXA is available now, and the PROFS DXA will be out in first-quarter 1995. Information was not available on when the EMC2 DXA will be out. Linkage's SNADS/ MailHub gateway is priced at \$10,000 and is available now.

Linkage: (613) 594-9244.



One in a series of occasional tips on Internet-based information services.

AppWare

The Parallel Staffing Group runs a file archive devoted to Novell, Inc.'s AppWare development tools. Resources include:

- ✓ Demos
- Visual AppBuilder files
- Archives of the AppWare mailing list

To access:

Via anonymous FTP, connect to parallel.com and then change to the /parallel/appware directory. Files are also available via E-mail. For instructions, write to ftpmail@parallel.com with a message of: help.

Gaffin can be reached via the Internet at agaffin@world.std.com.

WWW vendor adds secure transactions

Netscape Communications Corp., previously known as Mosaic Communications Corp., last week announced a deal with an Omaha, Neb., credit card company to provide electronic commerce services to users of Netscape's World-Wide Web (WWW) client and server software.

Netscape and First Data Card Services Group will use public-key encryption technology licensed from RSA Data Security, Inc. to offer firms a way to build electronic commerce applications on the 'Net.

Netscape sells RSA-enabled servers on which to provide WWW documents and is now giving away WWW clients that can connect to those servers via the Internet.

Under the Netscape-First Data deal, users of the client software will be able to send encrypted order forms and credit card data by clicking on a button, and WWW server providers will be able to authenticate the identity of people submitting orders. First Data will then act as a financial clearing house between buyer and seller.

Netscape's server software costs \$5,000 per server.

The company last week changed its name after complaints from the University of illmois, which developed the original Mosaic WWW browser, and Spyglass, Inc., which licensed the Mosaic source code. Netscape employs a number of onetime Mosau developers, but the company says its programming code is entirely new.

Netscape: [410] 254-1900.

BY ADAM GAFFIN







SHARED LOGIC

by Marc Myers

Toys for the enterprise

f your corporation is seriously considering client/server as an enterprise network platform, you have probably already discovered that the "name client/server development tools are not suitable for the task.

Microsoft Corp. Visual Basic, Powersoft Corp. PowerBuilder and Gupta Corp. SQL Windows are fabulously easy to use and are ideal for building departmental applications that access a local database server. But they don't have any built-in facilities for serious enterprise computing.

Let's face it, they're toys.

What's wrong with toys? Nothing, if you're a kid. But if client/server technology is to escape its lingering childhood and become a technology that large corporations can bank on, we need tools that can handle performance optimization, transaction management and configuration management.

Performance optimization is perhaps the most critical concern. A simplistic client/server system that pipes all requests to a single database server could not possibly replace a mainframe, unless that server were a

mainframe itself.

Transaction management should guarantee end-to-end integrity for database operations and other such transaction-oriented systems. Mainframe-centric shops will not find much new here, as CICS and IMS DB/DC have been providing such services for more than a decade. But the problem with client/server implementations is enterprise transactions often span multiple servers at multiple sites.

Configuration management tools should allow you to dynamically specify where processes and data should reside so your information systems shop can respond quickly as opportunities develop.

Two-tiered client/server systems, such as those based on Visual Basic and SQL Server or those based on SQL Windows and Oracle7, do not encourage the developer to create perfor-

mance, transaction or configuration strategies.

What we need are products that assume you are building an enterprise system and give you the necessary tools and guidance to build it correctly. Products such as Transarc Corp.'s Monitor, Encina Bachman Information Systems, Inc.'s Ellipse and Texas

Instruments, Inc.'s Composer are some of the pioneers here.

For performance optimization, the key is flexibility. Bachman's Ellipse gives developers a graphical user interface (GUI)-based frontend builder, where you specify not only the GUI, but also the logical resources, such as server and client processes, that you want to build. Underlying physical resources are then automatically relocated to lightly loaded machines at run-time. Ellipse also maintains enough system information that you can quickly recover from failures of a client, server or network by rolling back and resynchronizing all parts of the application.

For transaction management, the key is central control. Encina manages complex client/server transactions against multiple data sources with a central transaction management scheme. It supports distributed transactions across heterogeneous data sources using a two-phase commit protocol. So you could, for example, have a transaction that updates data in a mainframe database, a local database and

What makes configuration management so tricky is the multiplatform nature of enterprise client/server systems. While you may have envisioned an optimal configuration for the placement of data, processing and user sessions, the application software must support the relocation of processes and data onto diverse platforms. The technologists at TI are releasing Version 5.3 of Composer, formerly IEF, which allows you to "package" portions of your application as either servers or clients without any specific information about what platform those packages will run on. Then the packages can be recompiled and redeployed as

Composer supports processing on Windows, OS/2 and Windows NT clients, MVS, HP-UX, AIX and Windows NT servers, and features connectivity to databases from IBM, Oracle Corp. and others.

The ideal client/server development tool for enterprise systems would combine Ellipse's performance optimization features, Encina's multidatabase transaction management and Composer's packaging paradigm for configuration management. But until such a product exists, pick the tool with the features that are most critical to your environment. Fortunately, the products mentioned here and others in their class can be used to build robust and flexible client/server applications on which an enterprise can depend.

◆ Myers is president of Client/Server Connection, Ltd., a Cambridge, Mass., firm specializing in client/server software solutions. He can be reached at (800) 622-1108, Ext. 522, or via CompuServe at 71332,1726. Myers' column alternates in this space with that of META Group's Mike Rothman.

In-box

Continued from page 47

THE SOLUTION

Once users have universal in-boxes, they could also have little control if, when they open up their mailboxes, they find several hundred items waiting.

Server-based intelligent agents, however, could be programmed to sort incoming messages. In this scenario, messages from the boss could trigger an alert, while sales pitches from vendors could be filed away for later review.

Also needed are standards for seamlessly moving data from one medium to the other.

The Multi-purpose Internet Mail Extensions specification, designed for attaching multimedia files to TCP/IP-based E-mail, is one example of a standard that has been developed in this area. The EMA is also developing a scheme for body-part attachments - essentially file identifiers — that will give X.400 the same type of ability.

Rassner added that voice messaging and fax vendors are involved in similar integration efforts. In fact, the EMA's universal in-box work is based on an earlier project by a group of voice messaging vendors.

Also vital to universal in-boxes are unified directories.

Today, users typically have a desktop phone number, a fax number and, increasingly, several different E-mail addresses. If they move around, that creates more trouble.

A single networked directory would let the network track where users' locations and how they want their information presented to them, Rassner said.

Addressing could create a brouhaha among vendors because phone and voice companies want to use phone numbers, while E-mail vendors want to use E-mail addresses.

Users could begin to see products based on the work among different vendors within two years, Rassner said.

"We're talking about essentially a communications superservice being able to route or translate communications from one medium to another," he said. **Z**

Borland

Continued from page 47

new versions, which are available next month, will cost \$499 each for a two-user license and \$149 for each additional user.

APPBRIDGE AND WINMAKER

Separately, Cambridge, Mass.-based Software Development Tools, Inc. announced AppBridge Professional 3.0, a tool for converting legacy applications to Windows programs. AppBridge runs on Windows and works with any Open Database Connectivity or Distributed Relational Database Architecture-compliant database.

Also at Comdex, Blue Sky Software Corp. announced WinMaker Professional 6.0, a Windows-based code generator and application development tool.

Version 6.0 has a project manager that lets users access objects, dialog boxes, icons and menus from a central repository. WinMaker Professional runs on Windows and Windows

©Borland: (408) 431-1000; Software Development Tools: (617) 497-7878; Blue Sky: (619) 459-6365.

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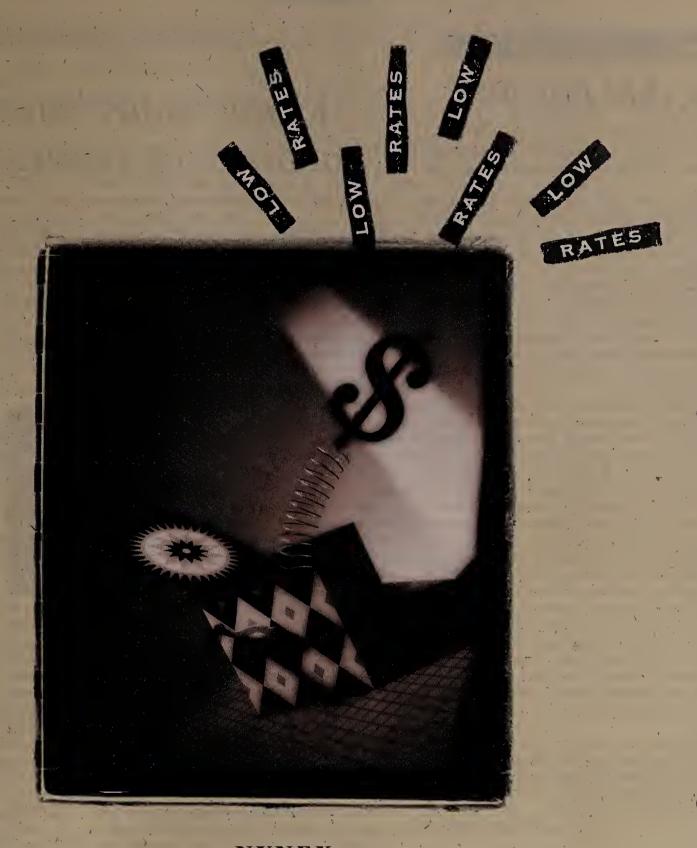
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NYNEX

But, what really won them over was a little something unexpected.

complicated procedure went off without a hitch. The What they did not initially realize was that NYNEX's in-state toll rates were not just competitive, but lower than what they had been paying with a national carrier. By choosing to go with us, Chittenden Bank now enjoys exceptional local service, plus toll rates that save them money. The following that expects great service and great rates from your phone company, give us a call at 1 800 343-4343, ext. 650.



EDITORIAL INSIGHTS

Walking that fine line

A couple weeks back, I was talking with a network manager for a major power company who neatly summed up the inherent difficulty of his job and yours. "In networking, you have to walk that fine line between being visible and invisible," he said.

As an IS professional, you want your department and the communications infrastructure it oversees to operate so smoothly that end users take network services for granted — that you become, in essence, invisible. "The network should be like electricity," the executive told me. "You only think about it

when it doesn't work."



But focusing on that side of the job alone can be dangerous. Unless you're visible in the organization, taking an active role in enhancing the business and envisioning new applications of network technology, then networking will be viewed as little more than a cost center that can be outsourced or not, depending on the pure economics of the thing.

Visibility, invisibility. It's a tough balancing act.

Fortunately, there are role models and in this issue, we showcase some of the best: the winners of *Network World's* 10th Annual User Excellence Awards.

What separates Hyatt's Regency Systems Solutions, the state of Iowa and our other honorable mentions from the pack? They break the mold of cost center-focused IT, take risks and invest in the hope of achieving something more — whether that be more profits and more heads on the beds or more opportunities for taxpayers and more hope for a better future.

We've been giving out the User Excellence Awards for 10 years now, and we've seen a lot of technologies come and go. Buzzwords like frame relay, ATM and fast Ethernet have made their way into the entry forms, supplanting multidrop circuits, 3270 terminals and other aging technologies. The nets you're building look different, carry more data faster and can manage themselves a bit better — though not nearly well enough — than they did in years past.

But the quality that characterizes the winners year after year is not measured in bits per second or the number of servers or end users. It boils down to precisely that sense of balance between visibility and invisibility. It is the ability to involve others in your vision — whether they be staff members or the governor of the state.

Even as network departments are squeezed to do more with limited resources and the demands for services outstrip capacity, the spark of innovation pushes network pros like this year's User Excellence Award winners beyond backroom status into an active, thriving role within their organizations.

For that, we congratulate them.

Only

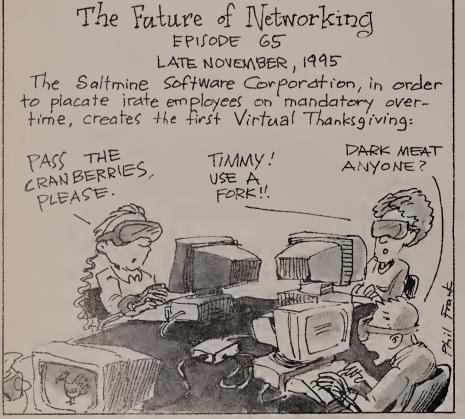
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TELETOONS

FRANK AND TROISE



REALITY CHECK

by Thomas Nolle

Frame relay interconnect means cost savings for users

arriers hope 1995 will be the start of something big in frame relay: interconnect. Early last month, the first frame relay interconnect conference was held in New Orleans. This multicarrier initiative made some real progress toward establishing the ground rules for interconnecting local exchange carrier (LEC) and interexchange carrier (IXC) frame relay services.

Frame relay is supposed to replace leased lines in a lot of data networks. The reason is cost: Frame relay multiplexes many conversations onto digital trunks, so users don't pay for capacity they don't need. But

most of today's long-distance frame relay carriers connect to users via leased lines, and the benefits of frame relay multiplexing are lost for the local exchange part of the connection. That may mean you pay more for frame relay services today. The frame relay interconnect initiative is working to change the way frame relay services work and how much they cost.

The frame relay interconnect initiative's goal is to link LEC and IXC frame relay services so users will have frame relay end to end. The group's first session

focused on building a template for intercarrier technical coordination in ordering frame relay service and in testing and managing frame relay connections. The attendees hope that the minimum framework will be in place by the first quarter of 1995. Until then, carriers will have to negotiate agreements in full with each partner, something no LEC or IXC is excited to do. A standard technical agreement will also reduce the risk that subtle differences in these bilateral agreements might impact user services.

For example, say a user wants a frame relay connection from New York to Los Angeles. A normal part of such a service is to validate the end-to-end connection before billing starts. With old-fashioned frame relay provisioning, LECs provided leased digital pipes that required no special validation at the frame level. If the LECs and IXCs interconnect frame relay services, however, somebody has to validate the LEC's frame relay net path to the IXC in New York and L.A.

Suppose NYNEX Corp. says, "Users get their customer premises equipment three days prior to turn on for local exchange frame relay checkout," and Pacific Bell says, "One day." An L.A.-based firm might well listen to its own LEC and thus miss the NYNEX test deadline. The result would be a late service turn on.

The first interconnect conference generated a set of definitions on how service order automation should be upgraded to accept frame relay's necessary parameters like committed information rate. It also approved a modified Bell Communications Research proposal on testing and activating user services that would handle situations like the one described above.

A second meeting of the interconnect initiative, held last week in Orlando, Fla., hammered out interim manual procedures that will be in effect until the automated systems can be changed. Another topic raised at this meeting was degraded service detection and correction. It's pretty easy to tell if a leased line is dead; nothing comes over it. With frame relay, you might have a perfectly valid interface at the physical level, yet all the frames are being discarded or delayed somewhere in the network cloud. Finding and fixing

this is important, particularly to the IXC, which is probably the company with which the user negotiated service-level agreements.

The question of what type of interface to be used between carriers has been resolved, for the moment, in favor of the Frame Relay Network-to-Network Interface (NNI). However, some carriers have reservations about this interface and prefer the ATM Broadband Inter-Carrier Interface (B-ICI). More work needs to be done on provisioning standards for frame relay over ATM and on the B-ICI before this change can be considered.

Then there's network management. Bellcore has a management framework called Exchange Access Operations Management that would describe how IXCs can get network management data on the parts of the LEC frame relay network that concern them. This framework could address the way that carrier managers see under one another's network covers, and it might also determine just what management information users might be allowed to access across a carrier boundary.

Switched virtual circuits (SVC) are frame relay's ultimate interconnect issue. It's not clear how much demand will be generated for frame relay SVCs yet, and Bellcore hasn't developed any technical framework for SVC connections between carriers. Which of these things has to come first is still being debated, and IXCs are still antsy about making it too easy for users to change their frame relay long-distance carrier through the frame relay equivalent of dialing 10XXX

But even the early steps toward LEC/IXC frame relay interconnect might have a significant impact on users. Service costs could go down; frame relay service from a LEC at a given speed is often about half as much as leased-line digital service, and local access is nearly 40% of frame relay network cost. Networks could be simplified for businesses with both interand intralocal access and transport area frame relay connections, because one frame relay access line could support permanent virtual circuits to both. Today, these businesses would probably have two independent frame relay connections.

There's a possible downside, too. Frame relay services offered by LECs and IXCs all have somewhat different levels of delay and risk of discards. How a frame relay NNI is going to impact these parameters isn't really known yet, and many users don't know just what kind of quality of service they're getting even from one carrier. Some careful experiments may be required to ensure these hybrid LEC/IXC connections don't add too much risk to frame relay.

Downsides notwithstanding, this is important stuff. Frame relay interconnect is hot now because frame relay is hot, which may indicate that any generally successful service will have to deal with these interconnect issues within a couple years of commercial introduction. Maybe we should take a lesson from frame relay and start thinking about ATM interconnect policies now.

Nolle is president of CIMI Corp., a technology assessment firm in Voorhees, N.J. He can be reached at (609) 753-0004 or via MCI Mail at 349-5845.

NUMBERING PLAN

by James Carlini

Users to pay for silence on area code issue

Recent changes to the North American Numbering Plan illustrate the importance of users voicing their opinions about regulatory proposals. Users chose to remain silent on this issue and will now have to suffer the consequences. Alternative access carriers and other vendors, on the other hand, expressed their concerns and now stand to gain from the increased debate about numbering plan changes.

Last year, Edwin Spievack, president of the North American Telecommunications Association, wrote an opinion column (June 14, page 36) urging NW readers to voice their concerns regarding proposed numbering plan changes or risk having to pay higher prices to adapt their customer premises equipment (CPE).

None of you must have spoken up loudly enough, so now you can all whip out your corporate checkbooks to pay for upgrades to your phone systems.

Common factor

I enjoyed David J. Buerger's col-

umn about freedom of speech meet-

ing Internet censors (Oct. 31, page

82). I suspect the freedom of speech

issue he addresses fits into a

broader, more depressing frame-

ship seems to be the only issue with

want to censor something. The only

nearly all books ever printed

broad, bipartisan support?

question is what.

Have you noticed that censor-

Liberals and conservatives alike

The religious right wants to ban

work.

multiple switches, you might get a quantity dis-

Count yourself lucky if your CPE even has an upgrade available. Some PBXs and key systems have no upgrade paths — they will need to be replaced. For example, the common AT&T Merlin II key system has no upgrade; its users will have to buy a new switch. If you have many small

branch offices utilizing this type of switch, you just might have a major procurement project looming ahead unbeknownst to you or to your upper management. This is more widespread than many users may have thought.

The same hidden costs apply to many other commonly used PBXs and key systems. Mainstream products

from vendors such as Northern Telecom, Inc. and Siemens Rolm Communications, Inc. will need upgrades. The cheapest you will pay for these upgrades will be \$150 to \$200 for a simple service call — but that's only if your system requires a minor software change. At a recent public utilities commission hearing about adding 630 as a new area code in Chicago, part of my expert witness testimony included 12 pages about systems that will cost more than \$150 to \$200 for a service call. Chances are, your system is on that list.

While users will have to pay (literally) for remaining silent on this issue, alternative access carriers who questioned the 630 area code proposal have profited by voicing their concerns.

The 630 area code upgrade was not a typical network change. Rather than encompassing a specific geographic area, the new area code would overlay the existing 312 and 708 area codes. Cellular and paging services would be segregated on to the 630 area code to make room on the existing area codes for business and residential numbers. Those opposed to this particular upgrade approach argued that some user organizations might delay upgrading their switches until it is absolutely necessary if network services are segregated rather than fully deployed onto each area code. This sparked a debate that made the proposed approach unacceptable. The final version has yet to be solidified.

Because the alternative access carriers were vocal, area code implementation and numbering plan administration, which used to be a cut-anddried issue, is now a heated, multidimensional argument about whose business these changes are going to affect. The good old boy network of traditional phone companies and regulatory commission staffs is being upset by upstart paging, cellular and alternative access companies raising issues that were never discussed because the good old boys always did what they thought was best for the consumers and themselves even when it wasn't. This type of atmosphere will create better approaches for providing network services to average business and residential con-

By voicing their concerns, the alternative access carriers opened up discussions that improved the situation, whereas the silent users got stuck with an approach that was favorable to the traditional carriers, but unfavorable to themselves. In the future, users should be proactive in voicing their opinions and concerns in the planning stages of regulatory issues so that the negotiated outcome will benefit them as well.

Carlini is president of Carlini & Associates, Inc., an international management consulting firm in Hinsdale, Ill. He can be reached at (708) 986-1888 or via the Internet at carlini@nwu.edu.

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The effects of changing traditional area codes - scheduled to take effect in early 1995 - to accommodate numbers other than zero and one in the second-digit position will have a direct impact on user organizations' budgets at the end of this year. Very commonly used equipment, such as the AT&T Definity Generic 1 and 2 private branch exchanges, will need upgrades ranging from \$1,500 to more than \$6,000 to accommodate the new area codes.

An AT&T System 25 PBX will require an upgrade costing about \$3,500; a System 75 will need a \$4,000 to \$5,000 upgrade. Upgrades to AT&T Dimension switches could run from \$2,500 to \$20,000, depending on the size and age of the system. These upgrade costs might be somewhat negotiable — for example, if you have

> because they all have words that at least rhyme with other words they don't like.

> Other people (I have no idea where they fall in the political spectrum) want to ban Huckleberry Finn because it accurately depicts the language used to describe African-Americans in the 1800s.

Feminists want to eliminate pornography because they believe it has a social consequence. Now there's a novel approach to the First Amendment — freedom of speech unless it has political ramifications.

The saddest part: The Internet community, which relishes its anarchic culture, takes huge offense at attempts to infringe on its own freedom of speech. No double standards

Regrettably, too many Americans have either forgotten, or else they've never learned, the reason why we have freedom of speech in the first place. Do high schools still teach civics?

Bob Lewis Minneapolis

Legal reminder

I commend David Buerger for taking up the thorny topic of freedom of speech on the Internet. But Buerger, along with many Americans, needs a reminder about U.S.

Regarding the mail bombing of Siegel's firm following its Internet advertisement, Buerger says, "This action challenged Siegel's freedom of speech, which is one of the most cherished rights guaranteed by the U.S. Constitution."

American society has a very strong tradition of tolerance on public freedom of speech issues, but this is not assured by the Constitution. The First Amendment to the Constitution states, "Congress shall make no law...abridging the freedom of speech, or of the press." This protects us from governmental limitations on speech but does not address nongovernmental limitations. We cannot expect the Constitution to determine Internet free speech standards; it does not

address the subject. Furthermore, the Internet is far from being an exclusively U.S. institution.

Like any community, the Internet will need to respond to injury with some means of regulation. While the form of Canter and Siegel's advertising was a flagrant insult to present Internet conventions, mail bombing is an equivalently childish and repugnant tactic.

The Internet is a historically unique community whose standards and regulations are still in the formative stages. We all need to have a lot of patience and tolerance as we work toward a set of rules that are broadly acceptable and work well.

Dean Pentcheff Research associate Department of Biological Sciences University of South Carolina Columbia

Point missed

David Buerger's column on freedom of speech missed the point entirely with regard to Canter and See In-box, page 54

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Help desk

Continued from page 2

upon PCs, bring in the flexibility of PCs, giving the user more power to configure and customize, which can be good but requires diligent attention to security measures to minimize misuse and abuse of PC power.

Stephen Cobb, a technology analyst at the National Computer Security Association adds:

There have been a lot of network security studies conducted in the government area. The National Institute of Standards and Technology (NIST), which is a part of the Department of Commerce, cosponsors the annual National Computer Security Conference with the National Computer Security Center, which is a part of the National Security Agency (NSA).

Cosponsored with the Air Force Information Warfare Center, NIST has also recently released a CD-ROM about security, which is based on information from the Forum of Incident Response and Security Teams and put out by the Security Tools and Techniques Resource Library.

For more information, contact NIST's Security Division by telephone at (301) 975-2934 or via their bulletin board at (301) 948-5717 (using up to 28.8K bit/sec, N81 and VT100 modem settings).

In addition, the NSA does evaluations of "trusted systems" against agreed government standards, such as the C2 level of security certification of NetWare 4.0.

For more information about government agency security studies, contact the NSA at (301) 688-6524.

For more information about NetWare security, you might also want to check out Novell's Application Notes, Special Edition, "Building and Auditing a Trusted Network Environment with NetWare 4.0," (Volume 5, Number 4, April 1994). This cooperative research report identifies NetWare 4.0 security and control strengths, and common security implementation weaknesses, as well as the problems and limitations affecting the areas of NetWare security. It also covers solutions for building a trusted enterprise network environment, and presents an audit methodology and program to ensure that the NetWare 4.0 network is trusted.

To order the report, call the Novell Research Order Desk at (800) 377-4136 or (303) 297-2725.

Can you help me track down a couple of vendors that provide TCP/IP for OpenVMS for the Digital VAX and Alpha AXP systems?

Jim Johnson, Burlington, Mass. NW found that TGV, Inc.'s MultiNet and The Wollongong Group, Inc.'s PathWay Access for OpenVMS provide TCP/IP for your systems. For more information, call TGV at (408) 457-5200 and Wollongong at (415) 962-7100.**∠**

In-box

Continued from page 53

Siegel's spam ad.

Even if we ignore that they were sleazily selling for hundreds of dollars a service available to anyone with a 29-cent stamp, the sin committed by Canter and Siegel was not posting their advertisements to Usenet newsgroups or even posting them to inappropriate newsgroups — their sin was posting their advertisements in a manner that required each user to read them more than once, and each system to transport and store them more than once.

News software (though perhaps not Pipeline's — I haven't seen discussion of it recently) provides for cross-posting to multiple newsgroups in such a way as to allow news readers (like rn and trn, for instance) to mark an article when it is first read, so that it won't show up in subsequent newsgroups to which it is cross-

This feature also allows news servers running on Unix platforms to store only one physical copy of a cross-posted article, with links to appropriate directories for each of the other newsgroups to which it is cross-posted.

Canter and Siegel posted thousands of individual copies of their advertisment, taking up thousands of times the transport bandwidth and disk space that would have been required if they had properly cross-posted it. If they had cross-posted it properly, there would have been hardly a ruffle raised on the 'Net; but their method (a method they espouse in their new book) wastes the time of users, and the bandwidth and storage space of news providers across the 'Net.

It is little wonder that Canter and Siegel have become net.pariahs: They broke the first rule of advertising, which is to know the people to whom you are reaching out on the medium you have chosen to use, and to know the standards of the medium, before you try to use that medium.

My fear is that, as self-appointed experts on the Usenet medium, Canter and Siegel will inspire thousands of others to use their techniques without regard for the standards and practices of the Usenet, and in the process, bog down the transport mechanism and storage media of Usenet servers.

> Tom Betz Assistant to the general manager Greyston Bakery, Inc. Yonkers, N.Y.

Get facts straight

I take great exception to David Buerger's column on freedom of speech. It is singularly misleading with respect to the Canter and Siegel spam issue.

Buerger says, "What angered many users was the distribution of the ad to newsgroups that had nothing to do with immigration issues."

No. What angered users was that the advertisement was indiscriminately cross-posted to virtually everything, plus it was an ad, which is something not allowed, by collective netiquette, in any newsgroup unless otherwise stipulated.

With respect to the flood of E-mail that was sent to Siegel's provider site, Buerger then says, "On one level, this action challenged Siegel's freedom of speech." But he goes on to say, ''Any move by a handful of extremists to curtail expression is reprehensible and stop."

Every person I know who uses the Internet and reads Usenet groups disagrees with what Siegel did, and I don't think that the opposition is limited to a handful of extremists. Meanwhile, allowing Siegel to spam the entire Usenet while restricting people from sending Email seems a contradiction for an advocate for freedom of speech.

If a dialogue is going to be started regarding the Internet's policing, let us at least be clear about the events under discussion and get the facts straight.

Garrett Hildebrand Systems wrangler Paciolan Systems, Inc. Long Beach, Calif.

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Network responds



CLOCKWISE FROM FRONT CENTER: John Biggs, Dan Amedro, Mark Lohman, Glen Holloway, Scott Andersen and Victor Vesnaver

to the Hyatt touch

By CHARLES BRUNO

commitment to

enterprisewide

applications

that run

across a Unix

transaction

processing

net puts Hyatt

Hotels in a

position of

excellence.



yatt Hotels Corp.'s networking philosophy is about as basic and old-fashioned as it gets.

"In this industry, it's not who has the technology, but how you use it," says John Biggs, chief operating officer of Regency Systems Solutions (RSS), the information technology unit Hyatt spun off last April

as an independent profit center.

Hyatt has taken Biggs' ideology to heart. Consider how networking has helped the company meet its business objectives and improve customer service during the past five years.

Hyatt devised its 1-800-Check-In program to let guests dial in to their hotel prior to arrival and secure a room number. The company's construction of a nationwide, private-line voice/data network has provided the underpinnings for a set of mission-critical applications that allow hotel general managers and sales directors to service customers on a nationwide basis, in effect, forming a national sales force unparalleled by competitors. And Hyatt has worked diligently to open its Spirit reservations network to the airlines, thereby lowering its reservations booking costs.

Then there are the more tangible network benefits. Hyatt has seen a healthy increase in the number of bookings through travel agents and airline reservations systems, which are far less costly than business that comes in over its toll-free 800 number. The company has seen a 25% increase annually in bookings through airline systems that electronically download reservations to Hyatt's Omaha, Neb., reservations center. This year, Hyatt

expects almost 86% of its travel agent reservations to come through so-called global booking systems maintained by airlines, rather than through more expensive calls to the Omaha center. Contrast that to 55% just a few years back.

Hyatt also expects to increase room revenue by 3% due to a homegrown revenue management system, and also will keep the long-distance portion of reservations calls to an average cost of

10 cents per minute. In fact, an independent survey of 23 hotel chains by the Graycon Group found that Hyatt reservations cost, on average, \$1 less that other chains surveyed.

These network advances, along with a staggering number of other network refinements, earned Hyatt's RSS the distinction of cowinner of *Network World*'s 1994 User Excellence Awards.

NO SCREWUPS

Hyatt's approach to networking is anything but traditional.

Four years ago, Hyatt shut down its Systems Network Architecture net on an August weekend and never looked back. Instead, it began a journey into the uncharted territory of large-scale IP-based Unix transaction processing (TP) networks.

"We really didn't have a choice," says Victor Vesnaver, assistant vice president of sales for RSS. "The critical data resides in our hotels, and it was silly not to take advantage of that. Still, nobody on our team had ever done anything of this magnitude before."

But Biggs is more direct. "We had nothing to throw away; our biggest goal was not to screw up," he says.

With the demise of the SNA network, Hyatt began a seven-year adventure into IP networking that continues today, as Hyatt network officials continue to learn about and refine their TP network.

Unlike other companies, Hyatt starts with a premise that if you build a big enough backbone pipe, you don't have to continually fight battles to get applications projects approved.

"Since the infrastructure exists, Hyatt has been able to layer applications

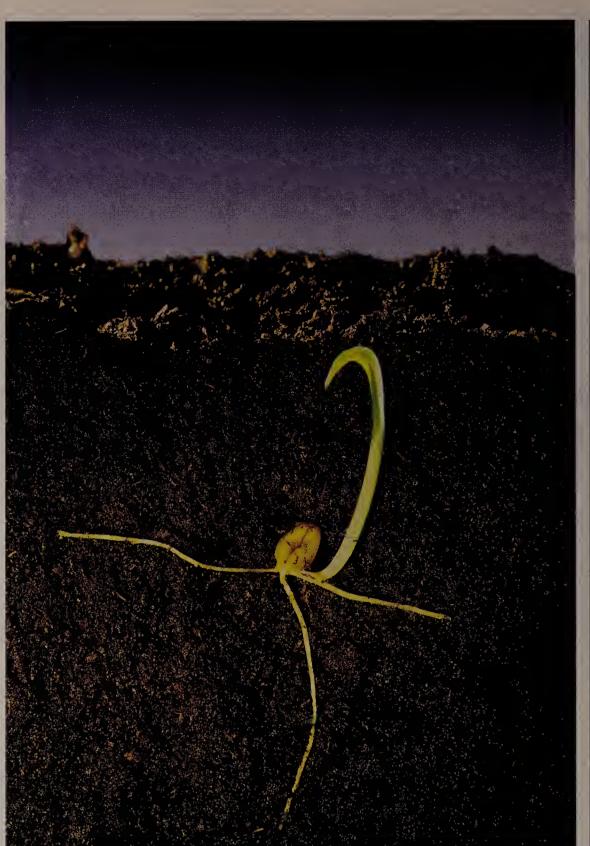
on top without having to justify the network

expense for each project individually," Vesnaver explains. "Similar to the common carriers, we're in a position of filling an existing pipe, which simplifies the justification and decision-making process."

Continued on page 60



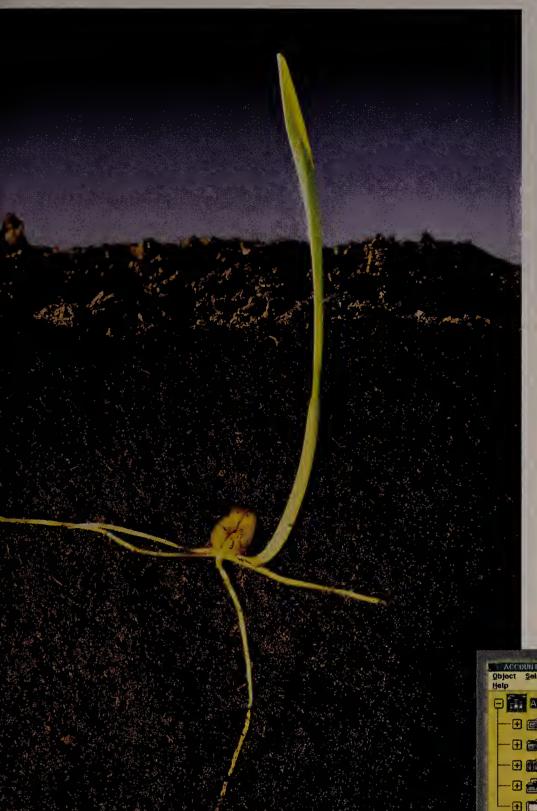








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User Excellence Awards

Continued from page 57

Today, Hyatt's data traffic resides as a guest alongside voice on the company's private-line T-1 network, which operates under a Tariff 12 custom network contract with AT&T.

"Data rides free, or close to it, because the [PBX] switches at the hotels are revenue generators," says Mark Lohman, manager of Hyatt's data network.



(From I.) Hyatt's applications team is headed up by the triumvirate of Todd Snyder, Robert Bularzik and Brett Cowell.

All domestic Hyatt locations are linked via 56K bit/sec channels carved from the T-1s back to the company's data center in Oak Brook, Ill. The data center and the Omaha reservations site are linked by redundant T-1s, with the Oak Brook location serving as the hub for the hotels. The network is anchored by more than 140 Advanced Computer Communications (ACC) Series 4200 routers, with Optical Data Systems Corp. Ethernet hubs providing access to computing resources at the hotels.

NEW BEGINNINGS

Lohman and Scott Andersen, director of technology for RSS, are beginning a new evolution of the wide-area net and company data center to better serve future enterprise systems requirements. The two are leading a migration from private leased lines to a frame relay net that will provide the added benefits of disaster recovery and cost efficiencies made possible by the ability to burst traffic over a line.

"The days of private lines are slowly

squeaking to an end," Andersen says. "Frame relay is more cost-effective to grow bandwidth; nailing up a 128K bit/sec point-to-point circuit costs a lot more than the frame relay route."

Frame relay may also support the influx of Internet-related traffic and international data carried by Infonet Services Corp., Hyatt's X.25 packet switching service supplier.

But frame relay economics isn't the only

factor driving change in Hyatt's WAN. The company plans to swap out some older Wellfleet Communications, Inc. routers that are beginning to show their age and replace them with Cisco Systems, Inc. 7000 routers in the data center and Cisco 2501s at remote locations. Hyatt already is about to replace the Wellfleet boxes next month and will complete the equipment migration in March 1996, when the current installed base of equipment comes off lease.

Other tasks involved include rolling new hubs into all the hotels,

integrating more advanced data service units/channel service units, cutting over to frame relay in a phased approach and implementing Fiber Distributed Data Interface technology in the data center.

According to current plans, it should take 12 to 14 months to convert Hyatt's 103 hotels, the Omaha reservations center and Oak Brook data center to the new setup. With the Cisco gear in place, Hyatt hopes to take advantage of the devices' new Enhanced Interior Gateway Routing Protocol, which reduces router-to-router traffic updates and allows for quicker convergence of router tables. This feature, plus a hot standby capability in the Cisco gear, will enable the routers to redirect traffic around network failures and ensure that sessions are maintained on an end-to-end basis.

The new backbone infrastructure will help Hyatt support a flood of new users brought on by unifying all hotels around the company's centralized Spirit reservations database. That move alone will result in an almost tripling of the Spirit system, from 525 users today to about 1,500 when the move is complete.

"That means the network now can't handle the data flows this will bring; so, essentially, we need a bigger highway coming to the front door," Lohman says.

The new user influx has been the catalyst to bringing in four Sequent Corp. SE60s — three that will operate in production and one in reserve for disaster recovery. The new processing engines will replace older generation Unix devices.

The hefty processing power will help support the hum of the Spirit reservations system, which accounts for 6% to 10% of the network traffic, and is expected to steadily rise. The new frame relay backbone should have no trouble with the increasing Spirit traffic. With frame relay, "if you put more applications out there that are bursty, then you can drive above your available bandwidth without knowing it," Lohman says.

The new WAN will also provide more flexibility in disaster recovery, Lohman says. Currently, the wide-area net is up 99.7% to 99.8% of the time. However, he says, as more data makes its way onto the net with the birth of new applications, congestion will rise and begin to tax the infrastructure. Already, there are signs of problems to come; the existing ACC routers, for instance, take sporadic hits and have to reboot, aborting sessions in the process.

That's why the Cisco routers were so appealing. Their hot standby functionality was critical to RSS; it is a capability Wellfleet did not offer. With the hot standby capability, if a router crashes, its sessions are kept alive by rerouting packets to a standby device, which assumes the media access control-level address of the idled device.

The one phase that keeps bouncing off the lips of Andersen and Lohman is that of the "big front door." The big front door for Hyatt will be a new FDDI data center backbone that will accommodate the new Sequent processors, provide for network redundancy in the data center and provide ample bandwidth to data knocking to get in.

But all these changes won't happen at once, like the sudden demise of the SNA net back in the late 1980s. Hyatt is embarking on a fourpart phased rollout of the wide-area overhaul. Initially, it will replace its T-1 connections with a frame relay cloud; it currently is working with AT&T to beta-test frame relay service.

Phase 2 of the plan calls for dumping the dedicated lines at the firm's Omaha reservations center in favor of frame relay and implementing new Cisco routers there. In the third phase, Hyatt will begin cutting sites over to frame relay, and will install the FDDI rings in the data center. Lastly, Hyatt plans to introduce data recovery into the new wide-area scheme.

Despite the outlay for the new routers and the transition to frame relay, Andersen says the project is one of the easier justifications to upper management.

"This is gear that is coming off lease, and the cost of maintenance for those devices will go up," he says. "Plus, the playing field of vendors has dramatically changed. We wanted to go with someone who has a clear market presence and mature product offerings."

Andersen estimates that the project will save 30% of annual net operating expenses.

THE LAN SERVICES SIDE

With all the activity on the wide-area side of the house, the local networks run by Glen Hol-

A case of tunnel vision

come on Hyatt Hotels
Corp.'s wide-area backbone network. So when
the company decided to move to Novell,
Inc. NetWare LANs, it began digging tunnels through its backbone bandwidth to
accommodate the IPX packets.

nly TCP/IP traffic is wel-

Hyatt officials designed a software script to run on servers to bring up an IP tunnel. Trouble is, once network officials started to open up as many as eight or nine tunnels through the backbone network, they realized network performance began to sag.

Once an administrator created a tunnel through the server, the connection was always open and bound to an IP address on the server. Another downside of tunneling IPX through an IP backbone is that it only allowed Hyatt to open a connection to one device at a time.

Furthermore, the company's Gupta Corp. database — which controls a strategic program for booking meeting rooms — would often crash when multiple IP tunnels were used. And performance would take a major hit because there were lots of service advertising protocol (SAP) broadcasts going across the wire to a data center server that would rebroadcast the data.

Another problem Hyatt faced with IPX tunnels was software distribution. If the LAN Services department decided to conduct a software update, it would require six people going full bore to each create an IP tunnel and individually download the software for each server.

"It used to take days, even weeks, to do a software install," says Glenn Holloway, manager of LAN Services.

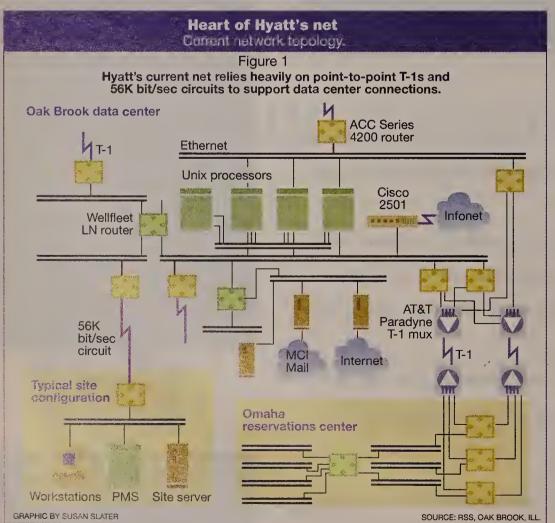
Undeterred, Hyatt fished for an alternative and got hooked on NetWare/IP. The software product provides NetWare core services via IP instead of Novell's own IPX protocol. That means downstream NetWare servers and other devices appear as nodes on the IP network. NetWare/IP provides two services to emulate the IPX protocol's broadcast mechanisms.

With NetWare/IP, a server now filters the SAP broadcasts it knows about so it doesn't dump them on to the network. The other major benefit is that an administrator can now see all the servers and printers on the net as displayed on an administrator's console; officials no longer view a single device through a tunnel, but can see all nodes on the net.

"We still go through a tunnel, but we see alot more now," Holloway says.

loway, manager of LAN services, seem relatively quiet. Hyatt manages NetWare 3.11 on 82 file servers, most of which are 33-MHz 486-class devices with 16M bytes of memory and 1.5G bytes of storage. These servers support more than 3,000 personal computers placed across hotels, executive offices and other locations plugged into the Hyatt network.

Continued on page 62





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User Excellence Awards

Hyatt's

their arrival and obtain their

room number, thus guaran-

processing is supported by

PMS. VCC is another inno-

vative application in which

Hyatt pioneered the elimi-

nation of credit card slips.

Upon check-in, guests'

credit cards are swiped

through a reader, which

brings up the reservations,

automatically requests a

credit authorization and

checks in guests. VCC replaces a manual system in

which overnight hotel

clerks would dial in to the

credit card networks for

uploaded to a central system for consolidated processing.

needed, the VCC system detects a guest has exceeded

an authorized amount and

more credit," says Robert

Bularzik, director of PMS

"During a person's stay, if remote authorizations are

charges

Upon

requests

authorizations.

automatically

checkout,

Likewise, Hyatt's VCC

a room when they arrive.

Continued from page 60

At first glance, the NetWare LANs seem underutilized; they support a handful of office automation applications such as Microsoft Corp.'s Microsoft Word and Excel. But the LANs are fast becoming the bastion of strategic applications such as Function Book, which provides master booking schedules for each

hotel. It tracks meeting reservations almost a decade in advance.

In the past, Function Book was aptly named because it often resided in a set of books into which sales managers and hotel general managers would enter bookings. The NetWare-based Function Book, though, takes the application a step further by creating an on-line agenda, which also opens up a local hotel's Function

Book to Hyatt sales agents across the country. On another front, since the backbone is

strictly an IP net, Holloway and his LAN services team initially resorted to IP tunneling as a means to communicate LAN to LAN over the backbone. "After you'd bring up eight or nine tunnels, you'd start to get tunnel vision," Holloway says. The problem, he adds, is that IP tunneling only allowed net administrators to view a single device at the far end of a tunnel; and opening too many tunnels would tax the backbone immensely.

As a result, Hyatt moved onto NetWare/IP, a relatively new Novell, Inc. offering that did the job well (see story, page 60).

NetWare/IP isn't the only new network service; Hyatt also will introduce LAN-based fac-

simile service based on Castelle Corp.'s Faxpress, and it has already deployed Proxy, a remote control product by Funk Software, Inc. that lets administrators take control of remote nodes, which greatly eases administration in a company with few experts in the field.

"The tools we have in place make it possible for us to support so many LANs with a mini-

mum staff," Holloway says. "And they'll also make it possible to support new strategic applications that find their way onto the NetWare servers."

LOTS OF APPLICATIONS

Anytime you talk about Hyatt's network, you have to also consider the applications that are layered on top of it. That's because RSS executives have

almost a fanatical zeal for their business applications, which they contend separate Hyatt from other hotel chains.

"Virtually no one else out there has the lineup of applications, or the depth of data, that we do," Vesnaver says.

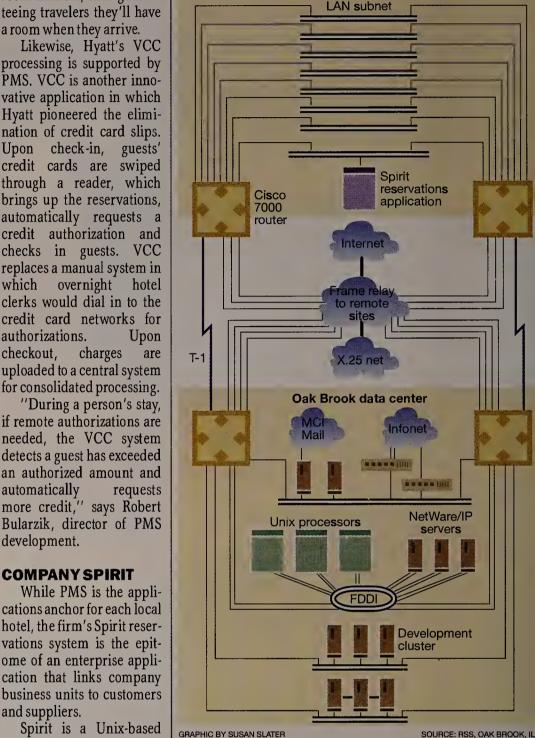
At Hyatt, it all starts with the company's Property Management System (PMS), a homegrown software suite that provides hotel financial reporting, inventory assessment, voucherless credit card (VCC) processing, frequent traveler reporting and interfaces to the Hotel Clearing Corp. and other organizations.

PMS actually is a Unix-based system that runs on the company's current generation of AT&T and Pyramid Technology Corp. Computers processors that reside in each hotel.

Among the applications Rings around the data center that fall under PMS is Future topology of Hyatt WAN. 1-800-Check-In. Figure 2 The program allows guests to call a local hotel the day of

Hyatt's future WAN will offer redundant routes via frame relay and rely on Cisco routers to keep sessions alive even if a circuit drops.

Omaha reservations center



development.

COMPANY SPIRIT

While PMS is the applications anchor for each local hotel, the firm's Spirit reservations system is the epitome of an enterprise application that links company business units to customers and suppliers.

Spirit is a Unix-based transaction processing net

that provides the central facility for Hyatt Hotels, the firm's reservations center, and for airlines and travel agents to book room reservations. Spirit is based on Informix Software, Inc.'s relational database engine and replication services.

To Hyatt's

Hyatt's vouch-

erless credit

card system

generates 8

a year.

million credit

authorizations

credit...

"There's no such thing as an industry standard for reservations systems," says Dan Amedro, Hyatt's vice president of MIS. "But we architected Spirit to be as open as possible, with the goal that some day others would want to use it." That's the reason Hyatt spun off RSS last April.

RSS officials say Spirit is the first implementation of a reservations system that can handle room blocking without requiring

the removal of specific room types from inventory. If that isn't enough, Spirit, they say, marks another first since it can enforce both minimum availability of room type and maximum booking for any room category.

Spirit provides subsecond response time for 95% of the transactions it handles for Hyatt. That led to some concern when the firm began to work with the massive airline reservations

networks, known in the industry as global distribution systems (GDS). While Hyatt's own reservations agents would enjoy subsecond response time, RSS had to negotiate some technology hurdles to keep transaction times

between the GDSs and its own Spirit system to seven seconds.

On some days, as much as 40% of Hyatt's reservations come from airline GDSs, while the other 60% of reservations traffic flows through the Omaha reservations center, according to Todd Snyder, director of development for Spirit.

One of the key initiatives for Hyatt, and a primary catalyst driving changes to the company network, is what company officials call the single-system image

project. Currently, Spirit is used largely by the company's Omaha reservations specialists, the airline GDSs and some Hyatt hotels that maintain their own reservations staffs. But some hotels continue to use reservations modules available under the company's PMS.

Now, Hyatt is trying to persuade those Spirit renegades to come on-board and move all reservations under a single database image

Managing with low-cost SNMP pack

Hyatt's guest

history database

is comprised of

11 million files.



iven Hyatt Hotels Corp.'s expansive enterprise network reach, you might think the firm has invested a hefty sum of money on network management.

Hyatt is managing its LANs and internetwork gear with a \$495 software package it found by thumbing through Network World's Action Center clas-

"We're managing over 1,100 devices on the network, polling them and pulling statistical data for \$500. Hey, for that price, what the heck, "says Mark Lohman, manager of Hyatt's data

Castle Rock Computing, Inc.'s SNMPc provides Hyatt officials with all the remote management capabilities the company needs to tap into downstream net devices anywhere on the net. The Windows-based Simple Network Management Protocol manager allows Lohman, for instance, to click on an on-screen icon that represents a network device and view what's happening at that device, even down to the port level.

What's more, SNMPc offers an application program interface that allows administrators to write programs that broadcast alarms to any number of workstations to alert managers of changes in network status.

Donald LaMure, Castle Rock sales manager, says SNMPc comes with key applications bundled in, including support for graphical displays and 180 Management Information Bases

Scott Andersen, Hyatt's director of technology, says the company realized it needed to provide SNMP management but didn't want to sink \$20,000 to \$100,000 into all the tools required for other popular net management products.

"The net management arena isn't very clear to us right now, or for the next 12 months," Andersen says. "We don't want to make a hefty investment now if we may have to scrap that later on.'

Hyatt is quite proud that it has managed to keep its cost for managing each PC in the company to less than \$500 per node. "We have 3,000 PCs and less than six people supporting those, vs. an industry average of between 90 and 100 PCs supported by each person," Andersen says.

The key, he adds, is collecting only relevant data. "You can gather a lot of print job info—a lot of traffic your really don't need," Andersen says. "Our general philosophy is to be efficleat and gather only what we need to keep the net running.

About the \$495 price, Castle Rock's LaMure says Version 4 of the product ships in January. and the cost of the product is expected to rise to \$795 due to a number of new enhancements. Those enhancements include, among others, a MIB compiler and a WINsnmp developers interface

User Excellence Awards

maintained on Spirit. That effort alone may nearly triple the number of users, and it is driving a major effort to rearchitect the network backbone to support the new load requirements.

Hyatt also plans to enhance Spirit by making an endless well of guest history information available to reservations agents and hotel staff.

That's the

Spirit, Hyatt's

system, is based

on 300,000 lines

fourth-generation

of code written

language and

3,000 modules

more than 200

database tables.

packaged in

that access

relational

in Informix

reservations

Spirit

This area alone is a strategic initiative because Hyatt officials believe it can create enormous goodwill and customer intimacy with guests.

Now, as guests check out of Hyatt hotels, historical records of their room preferences and other activity are stored in a central database for use when guests book future reservations with Hyatt.

"This is an enormous opportunity for us," Snyder says.

REVENUE TOOL

Reservations systems and property management systems are fine for handling daily operations of Hyatt's properties, but hotel managers need a strategic

tool they can use to accurately predict revenue

"We had a lot of information in the database of our old system, but it could only give us pace reports; it didn't help us zero in on particular accounts," Amedro says.

Now, Hyatt's Revenue Management System (RMS) provides hotel general managers

and corporate staff with a tool that tracks long-term vs. transient sales.

In other words, a good portion of hotel space is booked for conventions and other meetings months — even years — in advance, and often at discounted rates. RMS allows staff to balance the reduced rate revenue stream from long-term bookings and weigh that

against actual and anticipated bookings of short-term guest reservations

"The key is there's a lot more variability to the long-term rate, so you don't want to oversell to cut into transient sales," says Brett Cowell, director of development for sales systems at Hyatt.

HITTING THE HYMARK

Another of the nifty applications Hyatt packed in its bag is HyMark, short for Hyatt Marketing. The application, another of the popular Unix applications that have sprouted up across the company, is used to prospect new business.

HyMark provides the ability to track meetings and recurring spending for key accounts. It also enables general managers to track recurring meetings for major companies, and triggers an alarm for Hyatt personnel to contact the appropriate company liaison to solicit business for meetings the company knows are coming up.

"This tool gives us the advantage of provid-

ing a national sales force, which is a significant change in the industry," Amedro says

HyMark is currently a highly centralized application, but plans call for Hyatt to deploy a client-based graphical user interface (GUI) for the application to run on NetWare clients.

"The GUI effort is a recognition on our part that sales managers need a more intuitive interface," Cowell says. The goal, he adds, is to involve fewer people in a meeting reservation, which keeps costs under control.

HyMark represents a new opportunity for Hyatt, and one that Robert Bansfield, the company's director of account management, sees as a strategic edge over competitors.

"No other hotel has this type of system in place — the closest competitor is two years away," Bansfield says. What that means, he adds, is that a Hyatt sales agent can take a laptop computer to a client site, dial in to the network, pull up HyMark, and access data on room availability for virtually any hotel in the chain.

Furthermore, the setup allows the agent to transmit contract documents to a client's fax machine.

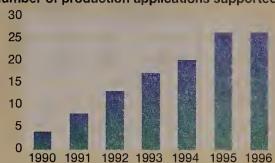
GETTING INTIMATE

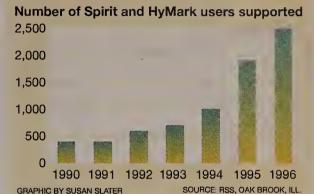
For Hyatt, what it all means is that RSS is giving the company the type of tools it needs to create a new level of service for its customers.

"The way we see it," Biggs says, "these are

Soaring application demands

Number of production applications supported





the applications that will allow us to provide unprecedented levels of customer intimacy that no other hotel chain can match because it doesn't have the network resources." It's the type of treatment, he adds, that's typically reserved for boutique-type hotels.

"This is exciting stuff to us," Biggs says. "We're redefining our industry and changing the way hotels serve their guests. We want to be out there as a leader, and we want to be able to share our technology with others."



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State of envy

By JOANIE WEXLER



here is no cello instructor in north central Iowa.

But that doesn't prevent residents there from learning to play — while also studying Russian or picking the brains of prominent astrophysicists visiting universities in other parts of the state.

For such enlightenment, Iowans turn to the Iowa Communications Network (ICN) — a year-old, statewide fiber-optic interactive net that allows small pockets of highly dispersed citizens to tap into rich educational resources — and, soon, telemedicine applications — that might not be physically available in their own towns.

After overcoming years of political hurdles, the state of Iowa is successfully running a 3,000-mile, 2.4G bit/sec Synchronous Optical Network (SONET) fiber backbone that is now being described as a microcosm for what many Americans envision as a worldwide information superhighway.

The net — built by MFS Technologies, Inc. between 1991 and 1993 — currently stretches among three universities, 15 community colleges, and several private colleges, universities, schools, prisons and state government offices.

For its vision of how networking can benefit the masses, and for its risk-taking, *Network World* recognizes the State of Iowa as cowinner of its 10th Annual User Excellence Awards.

BRANSTAD'S FOLLY

Fueled by the economic downturn of the mid-1980s farm crisis and the need for Iowans to stay educationally and industrially competitive in a state that is 80% rural, the ICN was conceived by Iowa state government in 1987. After two false-start bidding processes, officials two years later made a then-controversial decision to build and run the private high-speed digital network themselves.

It was a move that had telephone company monopolies complaining about encroachments on their turf and one that caused taxpayers to react with words such as "boondoggle" and "white elephant" to describe what was then an intangible concept, ICN officials say.

But without the network, the state figured, "the cost of educating a few kids here and a few kids there in some subjects was just too high," explains Iowa Governor Terry Branstad, the project's conceptual champion, who was reelected this month.

The dispersed nature of the rural state's population was making it difficult to attract educators and resources to sparsely populated areas, he explains.

Now, after its first year of operation, the ICN has logged 90,000 distance-learning hours, according to Pamela Johnson, director of educational telecommunications at Iowa Public Television, which handles the scheduling of videoconferences for class sessions.

About 60 events — averaging a total of 10,000 to 20,000 minutes — are scheduled each day on the network, she says.

Those hours include a University of Iowa class on the Holocaust taught in Iowa City and attended by three senior citizens in Wapello, about 60 miles south. Meanwhile, children in southwest Iowa recently connected with noted astrophysicist Dr. James Van Allen at the university to pump him for information about the comparative merits of manned vs. unmanned space flight.

Music lessons are being taught via the network by an instructor in Des Moines to students in Cedar Falls. And Iowa State Librarian Sharman Smith recently brought together 1,100 library trustees and librarians in 88 sites throughout the state over the net for a two-hour meeting focused on the roles and responsibilities of trustees.

The list goes on.

Johnson says Iowans are beginning to warm to the ICN — and the idea of their tax dollars supporting some of its costs — as the network continues to develop and citizens can experience the benefits of it.

"In two years, many people have moved from a general attitude of 'Do we really need this?' to 'When will I get hooked up?' " she says.

College enrollment — after a period of decline — is again on the rise, and unemployment is at an all-time

low, Gov. Branstad says, in part thanks to the ICN.

The ICN is also taking in nearly \$8 million in revenues for voice, newly launched desktop video and data services — including Internet connectivity and frame relay — delivered to state agencies, hospitals and other organizations, says Paul Carlson, interim operations manager of the ICN.

The state originally went out for bid for public network services, but those options wound up not making financial or functional sense, says Tony Crandell, network administrator. US WEST, Inc., for example, proposed building an analog network that could link seamlessly with its existing network, while the state's research had convinced officials that the new network should be digital to carry it into the future.

In addition, using a telephone company's net for the backbone would have involved upfront costs of more than \$200 million, compared with the \$100 million the state paid MFS Network Technologies to build the network, Crandell estimates.

UNIVERSAL SERVICE

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Education was the key impetus behind the network, as Iowa has long emphasized education as a state priority and boasted the nation's highest test scores. A pri-

mary premise was that there was to be no price discrimination based on geographic locations or mileage of transmissions, so that all Iowans would have equal educational opportunities.

The \$5 per site, per hour (government subsidized) cost for interactive videoconferencing is available throughout the state's 99 counties, and there are classroom

facilities no farther than 15 miles from every person in the state, Johnson says.

The ICN's hourly price compares with what would cost \$300 to \$400 per hour using commercial phone company links for interactive video — if DS3-speed facilities were even available in the remote locations requiring connectivity, Crandell says.

Each classroom is outfitted with three cameras: one

Continued on page 66







LEFT TO RIGHT: Col. Roger Schultz, Tony Crandell, Bob Baur, Paul Carlson, Pamela Johnson, Phil Smith, Ted Chapler

The lowa government builds a 3,000-mile high-speed network to roll out advanced services to taxpayers, and to lure business and industry.

User Excellence Awards

Continued from page 64

that faces the class, another pointed toward the instructor, and a third looking over the teacher's shoulder, so the instructor can write or do demonstrations that can be viewed by students.

Instructors can zoom in and out with cameras by pressing the touch screen of a computer that is at the teaching station. Two television monitors face the class so they can view themselves, the teacher, teaching materials and participants at remote sites.

Students talk to each other and to the teacher by pushing a button on a microphone at their

The state government subsi-

dizes the cost of communications with \$15 million a year in appropriations. At a cost of \$100 million to build the backbone, "another \$15 million a year is a bargain," Gov. Branstad

To foot the ICN infrastructure bills, the state also issued \$114 million in certificates of participation, or bonds, that must be paid back over 14 years, Carlson says.

Ongoing annual operational costs for the network are about \$600,000; however, using public services from AT&T would have cost about \$1 million per year, Crandell estimates.

"What we're doing is expensive. But it's still the cheapest way to do it," he says.

If carriers would provide the same capabilities at similar cost, "we'd take it in a minute," adds Phil Smith, director of the Iowa office for state and federal relations.

"But the services are simply not available,

says. "So we're assuming the risk."

Research on the effectiveness of distance learning indicates that, in general, student

because there is no business case for the tele-

phone companies" to provide high-capacity

fiber links into sparsely populated areas, he

achievement is the same whether they are learning in a local classroom or via videoconference, according to Mike Simonson, a distance-learning researcher at Iowa State University.

The university has conducted about 15 research studies that compare test scores of exams issued by teachers, as well as standardized achievement tests, he says.

HUT, TWO, THREE, FOUR!

The educational emphasis is currently taking a military twist, as

well. The STARC Armory in Camp Dodge the hub and network control center of the ICN — is in the midst of launching training sessions for military troops on the weekends in 63 networked classrooms in armories throughout the

A satellite link between the STARC Armory and military training grounds in Oklahoma and Virginia allow the Iowa National Guard to also be trained at the federal level for going to

war and for national emergency/disaster procedures, explained Col. Roger Schultz, chief of staff for the Iowa Army National Guard.

The Iowa National Guard received \$10 million in appropriations from Congress to use the ICN to develop a prototype for the interactive multimedia learning programs, he says.

The military applications simulate digital terrain and comprise virtual reality scenarios for soldiers, offering a three-dimensional view of the state's geography. "To get the likes of virtual reality, we needed DS3 speeds," Schultz says.

The ICN supports 48 DS3s, 1,344 DS1s and 32,256 DS0s. Crandell suspects that Asynchronous Transfer Mode is about three to five years away but that eventually the ICN will want to leverage it for its touted band-

width management and alternative routing

When the armories are not using the classrooms, they are opened up to the public for commercial use, giving the public 40 to 50 hours of prime time use of the facilities. The extra classrooms serve as a vehicle for training

> and adult education without infringing on school activities, Phil Smith

ON THE HORIZON

One large potential use for the network is for data storage, says Bob Baur, chairperson for the ICN. The net should allow Department of Defense manuals, medical books and materials allowing a "virtual hospital" — such as patient records — to be stored and accessed on-line.

Meanwhile, telemedicine applications are emerging; three hospitals are already on the network for interactive teaching, training and experimentation. Fifteen hospitals will be linked by the end of the year.

However, some issues remain with the medical applications. Iowa law says that no government subsidy can be used to connect hospitals to the ICN, which could be an initial deterrent to some facilities.

In addition, the virtual hospital raises questions of how to control access to confidential patient records and reimbursement methods for physicians consulting from all over the state with a primary physician, according to Phil

Parole hearings are already taking place on the network, saving the community the cost of transporting prisoners to courthouses and reinforcing security. Also, the use of the network encourages some alleged crime victims to participate in courtroom procedures when they want to testify but do not want to be in the same physical room with a defendant, Phil Smith says.

Other telejustice applications will be investigated for civil cases, such as arraignments, bankruptcy hearings and procedural motions,

Other states with similar projects include North Carolina, Georgia and Maryland. The difference is that in Iowa's case, the state is bearing the brunt of the network costs. In

> Maryland, for example, Bell Atlantic Corp. charges \$2,700 a month per school for hookups, says Phil Smith, who is also an Iowa lobby ist living in Maryland.

> "This either inspires communities to just go hire another teacher, or it creates 'haves' and 'have-nots','' says Ted Chapler, Iowa Finance Authority director. "We want everyone to be a 'have."

> He and other ICN officials say they envision a larger role for federal government in distance education. The National Information Infrastructure effort headed by the Clinton administration "virtually ignores the states today, even though states spend twice the money on information technology as the federal government does," Chapler says.

> He suggested the federal government could serve as financial glue by helping erect regional centers for tele-training and joint elec-

tronic research that could be shared by multiple states. Another role of federal government, he says, could be to ensure that health care reform deals with support mechanisms for interstate telemedicine applications, such as modified physician licensing and reimbursement procedures.

AND INTO THE SUNSET

Meanwhile, the state's 154 local phone companies have quieted down. The mom-andpop network operators with small monopolies in certain cities have found their business has increased, as the rise in network applications has resulted in more tail circuit traffic for them.

Similarly, US WEST has connected its public frame relay network to ICN's frame relay network, which is based on Cascade Communications, Inc. switches and Wellfleet Communications, Inc. and Cisco Systems, Inc. routers, reportedly with no interoperability problems. The interconnection has meant some spillover business for US WEST.

The ICN has DS3 links to all the major carriers to position it as a true segment of the inevitable information superhighway.

But for others embarking on similar projects, statewide network projects take time, money and perseverence, ICN officials advise.

It can be difficult selling people on an idea no one has ever seen that will take three to four years to build, Chapler says.

"You need a committed work force that can take a lot of heat," he adds. 2

Kirkwood pioneers tele-teaching

he concept of distance learning in Iowa has been around longer than you might expect. Kirkwood Community College in Cedar Falls pioneered the application for the state in the early 1980s and served as a model for other school districts to get into interactive tele-teaching over 12-GHz analog microwave links.

So it was no surprise that Kirkwood became the leader in launching

courses on the higher capacity fiber Iowa Communications Network (ICN) and paving the way for other educational institutions to get classes up on the net.

capacity [of the fiber] and offer maximum opportunities," Gross says.

"We need to

expand to

use all the

Kirkwood officially serves a

seven-county area. More than a decade ago, it set up microwave links to a learning center in each county and 20 high schools, bringing college credit and high school equivalency courses to students in areas totaling 4,500 square miles.

The advent of the ICN allowed Kirkwood to add about 20 extra distance courses per semester to its repertoire and extend beyond its regular serving area throughout the state to universities and colleges, says Rich Gross, executive director of telecommunications at Kirkwood.

Prior to the ICN, the microwave nets were fully loaded, Gross says. In addition, "over-the-air technologies are limited because they are susceptible to atmospheric conditions. The quality of ICN is just excellent.''

challenges are emerging for Kirkwood, Gross says. For example, now that a comprehensive network is in place, growing numbers of users are attracted to the benefits of distance learning, and scheduling on a regional and statewide basis is becoming a job in itself.

ited to one channel in each classroom so capacity for the fiberkand offer massimum

granted

When constructing the ICN, MFS to acquire more than 700 permits from the lowa

Permission

Technologies had State Department of Transportation.

Reporting

for duty

The ICN is managed using centralized software from Terre Haute, Ind.-based **Applied Comput**ing Devices, Inc., maker of network management systems for phone companies. About 9,000 monitored devices report back to the network control center running the software at Camp Dodge.

History of the ICN

1988-89

1990

1991

1992

1993

RFP is issued for statewide net; all responding vendors recommend fiber. Teleconnect wins bid, but AT&T appeals. Bid is thrown out.

Second RFP is issued. Cost estimate is too high; RFP is withdrawn.

Third RFP is issued. No phone companies respond; instead, they campaign to kill the bill.

Kiewit Network Technologies, Inc. (later to become MFS Network Technologies) wins contract. ICN backbone is built.

Fiber is laid in one classroom in each of lowa's 99 counties.

System goes on-line; runs 16,000 hours of educational classes in first year.

Iowa Telemedicine Advisory Council.

Telemedicine demos begin.

Parole hearings begin via ICN.

Camp Dodge initiates military and emergency training via ICN throughout the state's armories. Classrooms open to the public during off-hours.



GRAPHIC BY SUSAN SLATER



ive users make data networking the Eleventh Commandment and earn honorable mention in NW's 10th Annual User Excellence Awards.

Honor NW's 10th Annual Excellence Award thy networks

Brigham and Women's Hospital client/server pill cures net ills

The largest client/server network in the health care industry has allowed Boston's Brigham and Women's Hospital to reduce operating costs and improve patient care.

Brigham and Women's has a Massa-

chusetts General Hospital Utility Multiprocessing System (MUMPS)-based network that supports 129 applications for administrative, financial and patient

care activities — each with high demands for availability and performance.

That's why Brigham and Women's installed a campuswide client/server network that supports 130 NetWare servers and 3,800 clients. The network is made up of a 16M bit/sec token-ring backbone that serves as the hub for 72 4M bit/sec token rings

Eight off-site locations are connected to the network with routers and T-1/T-3 lines. Harvard Community Health Plan centers from Braintree to Burlington, Mass., are also linked to the Brigham and Women's net.

The conversion to the architecture, which includes downsizing MUMPS-based applications from Data General

Corp. minicomputers to DOS-based personal computers, is about six months shy of completion. But it's already paying dividends.

It's provided the hospital with large amounts of inexpensive processor power,

RRIGHAM age. The increased processor power is essential for the medical expert system, complex clinical data navigation and system guidance of

patient care protocols.

The increased network capacity is crucial for supporting radiology image transmission. And the large storage capacities have resulted in the ability to create an online permanent medical record.

The net has also enabled Brigham and Women's to quickly deploy new network operating systems, development tools and hardware technologies without removing other technical infrastructure investments. In addition, it has let the hospital maintain a flat information systems (IS) capital and operating budget despite a 100% increase in the number of workstations and a 50% increase in the number of applications over the last five years.

But the bottom line is patient care.

Brigham and Women's new network has not let the institution down.

For several surgical procedures, the hospital has reduced the need for laboratory tests by 33% and blood by 20%. It has also cut the average time for a physician to respond to a life-threatening patient condition from five hours to twelve minutes. The network has also reduced the likelihood of an adverse, preventable patient care error by a factor of six. And the clinical expert system it supports has stopped an average of 90 ineffective or harmful medication orders per day.

"There are two parts to this," says John Glaser, vice president of IS at Brigham and Women's. "The primary part is the

network enables certain categories of applications that we couldn't have done otherwise, because [we] didn't have the raw aggregate processing power or integration. The second part is having a platform that is a terrific enabler that we haven't had to



GLASER

pay big bucks for. The capital and operating costs have remained flat. So we're able to get this terrific enabler while keeping our budget flat at the same time."

BY JIM DUFFY

NEXCOM anchors net in frame relay

Consolidating operations and reducing costs are two reasons why the Navy Exchange Service Command (NEXCOM) is installing a worldwide frame relay LAN internet.

NEXCOM is a \$2 billion retail and services organization supporting active-duty and retired military personnel at more than

locations selling worldwide. Until a year ago, those locations were supported by 14 data centers Honeyhousing IBM,

well, Inc. and Unisys Corp. mainframes, and a "very rigid and inflexible" network of asynchronous dumb terminals and point-topoint dedicated lines, according to NEX-COM officials.

"When I walked in here a year ago, we actually had keypunch machines, if you can believe that," says Sue Dubman, NEXCOM chief information officer.

Enter NEXNET, a TCP/IP-based client/server network of interconnected 100M bit/sec switched Ethernet and Fiber Distributed Data Interface LANs comprising 8,000 personal computers, 200 Unix servers and

300 routers. The LANs are linked via frame relay; ultimately, 200 sites will be linked into a fully meshed frame relay net, Dubman says.

NEXNET also includes virtual private networking services for voice communications. Separate twisted pairs are being used for data and voice because integrated voice and data technologies have yet to emerge, according to NEXCOM. And even then, it may not make sense, because a single voice/data network represents a single point of failure.

NEXNET supports some key objectives for NEXCOM, including worldwide consolidation of buying and functions, accounting

improved service to sailors and operational cost reductions.

Some of those cost reductions will come from consolidating those 14 data centers into one, according to Dubman.

For customer service, NEXNET provides a central facility to manage a worldwide point-of-sale network.

When any TCP/IP network node is down, NEXNET automatically notifies network administrators by paging them or sending alerts to a Hewlett-Packard Co. OpenView console at the network operations center in Virginia Beach.

For consolidation, NEXNET allows NEXCOM to realize a more than 25% cost reduction annually from trimming financial, buying and data processing operations. NEXCOM is downsizing some mainframe applications to Unix servers, which allows them to eliminate some mainframes altogether. NEXCOM recently replaced an IBM System 3090 with an HP Series 9000 server.

NEXNET will also enhance relations with vendors. The network will allow NEX-COM to share POS and warehouse movement data in inventory, purchasing, sales and financial applications. NEXNET enables NEXCOM to share this information with its suppliers, vendors and partners via electronic data interchange, and voice and electronic mail.

Though the benefits are numerous, NEX-NET is not without its challenges. NEX-COM is trying to implement the new infrastructure without disrupting day-to-day business operations.

"It's like trying to repair a jet engine in mid-flight," Dubman says.

The network, which will be completed in mid-1996, will allow NEXCOM to move toward its vision of an integrated, fully automated retail system that can electronically replenish store shelves so they are never empty and back rooms so they are never full.

BY JIM DUFFY

Nets emerge as weapon in military downsizing efforts

In this post-cold war era, net managers in the U.S. military are joining their brethren in the commercial sector in downsizing networks to do more

A prime example is the U.S. Strategic Command (USSC) at Offutt Air Force Base in Nebraska. The USSC interconnected two tokenring LANs with an Ethernet in a client/server environment dubbed the Strategic War Planning System (SWPS). The SWPS enables military strategists to more quickly exchange information when preparing war planning documents that get distributed to national agencies and command authorities.

The SWPS replaces an outmoded, batch-oriented IBM mainframe environment with a TCP/IP-based internetwork that provides quicker and more efficient access to needed resources using such tools as SunSoft, Inc.'s Network File System and a mix of remote procedure calls. For example, the USSC dumped a batch-oriented IDMS database in favor of an LU 6.2-based transaction processing system that gives a mix of devices, such as Unix-based workstations and DOS-based personal computers, near real-time access to data stored in a Sybase, Inc. database.

In the process of deploying an internetwork managed by distributed analysis and configuration tools that keep it running 99.9% of time, the USSC eliminated some duplicate resources and saved the military \$400,000.

The Air Combat Command (ACC) at Langley Air Force Base in Virginia has reduced manpower 20% during the past two years while upping the number of nodes on a network designed to support a paperless office from a few hundred to over 3,500. With the use of electronic mail and over 200 different electronic forms, the ACC has cut the time it takes to prepare staff summary sheets used to disseminate information from between 4 and 10 days to no more than 3 days.

With all the downsizing, some military units have improved manpower accounting systems to keep track of the turnover.

For example, staff responsible for manpower management at the Army's Training and Doctrine Command at Fort Monroe in Virginia converted a CSP/SQL-based manpower accounting system from a mainframe platform to a LAN four times faster than it would've taken to rewrite the mainframe code.

Networking is coming to the rescue of all the displaced personnel, too. When the Mainz Army Depot in Germany began closing its gates in 1992, affecting military and civilian jobs, staffers created the Employ service on the Internet. Employ posts job listings made available through the Civilian Personnel Office and the Office of Personnel Management.

In its first day of operation in August 1992, more than 100 people from all over the globe subscribed to the service. Today, the service can be directly accessed by an estimated 20,000 people worldwide, and its job listings have been made available in the Fedjobs directory on a host at Dartmouth College in Hanover, N.H.

Fedjobs can be reached via anonymous FTP by connecting to dartcms1.dartmouth.edu.

BY JIM BROWN

Data flow helps cash flow

Networking has helped the Comanche County Memorial Hospital (CCMH) realize significant cost savings in radiology and lab tests, and improve cash flow by decreasing the number of days that payments are held in the receivables department.

CCMH is a 283-bed regional referral center located in southwest Oklahoma. It owns and operates 17 rural health clinics, a 118-bed long-term care facility, a home health agency and an ambulance service, and is the hub of a nine-hospital HMO called First Health West.

In November 1991, CCMH began construction of a router-based

T-1 net that would tie all of these entities together and let them exchange information as if they were all in the same building. The main net is a 10M bit/sec campuswide 10Base-T- and fiber optic-based Ethernet at CCMH that supports six Novell, Inc. and Artisoft, Inc. file servers, Hewlett-Packard Co. Series 9000

and 3000 host computers, 260 workstations and 120 terminals, printers and other peripheral devices.

By mid-1995, CCMH will have completed a 12-county wide-area T-1 net that will link each HMO, hospital and clinic to the CCMH Ethernet net. Dubbed First HealthNet, this net will comprise 17 to 20 routers that will shuttle IPX and TCP/IP packets between each site.

FirstHealthNet will let medical consultations be conducted between rural physicians and CCMH-based clinical specialists. It will also provide for remote cardiac monitoring and the digital transmission of X-rays and other clinical and administrative data.

"We experienced a 10% to 15% loss in charges for radiology and lab tests three years ago," says Richard Caldwell, CCMH vice president of information services. "Today, our percentage of loss charges are maybe .5%, if that. That's directly attributable to what we've done network-wise."

From any single workstation on the LAN or in a remote office, the CCMH staff can obtain patient demographic or hospital financial information.

Each morning, hospital census, workload statistics and accounts receivable information are transmitted via electronic mail to each CCMH vice president and department director so staff time and attendance records can be reviewed.

"We have reduced our days in receivables by about five days," Caldwell says. "That equates to about over \$1 million in cash influx."

BY JIM DUFFY

Keyport LAN reaps savings

Networking is the best insurance for saving costs and gaining strategic advantage, according to Keyport Life Insurance Co. of Boston.

In 1990, Keyport activated what has become the largest network life administration system in the U.S. After two years of overseeing funding and research and development, Keyport went live with a 16segment 10Base-T Ethernet network that ties together more than 250 80386 and 80486-based DOS PCs, database processors, two NetFRAME Systems, Inc. superservers, a Digital Equipment Corp. VAX 6000 and several printers.

Eleven of the 250 PCs function as Novell, Inc. NetWare 3.11 file servers. The NetFRAME systems also run NetWare and house Keyport's lifeblood, its Remote Policy Entry (RPE) annuity administration system.

This network supports the bulk of Keyport's business processing needs through the administration of more than 230,000 annuity policies. The network allows Keyport to realize an annual savings of more than \$20 per policy when measured against a competitive outsourcing solution.

In addition to cost savings, the network has granted Keyport greater autonomy for conducting business. An example of this autonomy is RPE. The system was developed in-house and has allowed Keyport to extend its reach into the lucrative annuities mar-

Prior to the development of RPE, Keyport relied solely on the traditional channels of agencies and broker/dealers to bring its products to market. RPE allowed Keyport to tap banks and third-party marketing companies by moving functions such as policy issuance closer to the point of sale.

At more than 20 sites across the U.S., 80386-based RPE terminals capture and edit all data related to a customer's purchase of a Keyport annuity contract. RPE issues a contract immediately to the customer at the point of sale and then off-loads and transmits the contract data over 9.6K bit/sec dial-up lines to Keyport, where it is electronically exchanged into the NetFRAME-based administration system.

"By putting these POS terminals out there closer to the customer, it's given us a competitive advantage in the marketplace of allowing a more efficient way of submitting policies from the field and allows us a much more efficient way of processing," says Leslie Laputz, vice president of Keyport.

BY JIM DUFFY

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User finds that nets can be addictive

Imagine running a research facility for an area as sensitive as substance abuse and addiction, and not having a network to support your

That's what the National Institute on Drug Research Abuse/Intramural Program (NIDA/IRP) was facing four years ago. Now it's being recognized for an honorable mention in Network World's User Excellence Awards.

NIDA/IRP is located at the Johns Hopkins Bayview Medical Center in Baltimore. It is a research facility under the National Institute of Health (NIH), conducting both basic and applied research in the areas of substance abuse and addiction.

Four years ago, NIDA/IRP's Information Systems Section was formed and David Affeldt was hired as the chief of information systems

(IS). With no existing network infrastructure on which to build, he and his staff of newly graduated computer scientists began devising a plan for a network that would meet all existing and future

requirements.

Four years later, NIDA/IRP & now has a network makeup that reads like a who's who of industry giants. It includes: seven Ethernet segments that anchor four Novell, Inc. NetWare 4.01 file servers on Compaq Computer Corp. 586/60 Proliant systems; four NetWare 3.11 file servers on Dell Computer Corp. 486/33 SEs; an

> Oracle Corp. Version 6 database on an OS/2 server; an Oracle Version 7 database on a Novell 4.01 server; a NetWare for SAA Systems Network Architecture gateway; over 400 heterogeneous workstations; WordPerfect Office 4.0a for electronic mail and group scheduling; a T-1 link for Internet access via Mosaic;

plus printers and scanners.

The NetWare for SAA SNA gateway provides a 64K bit/sec connection to the NIH's procurement system on an IBM mainframe in Bethesda, Md. The gateway provides an attractive alternative to installing Digital Communications Associates, Inc. Irma cards in the Macintoshes and personal computers on the net, coaxial cable throughout the building, and a 3174 cluster controller with a 9.6K bit/sec link to the NIH mainframe, Affeldt says.

"We can support 508 concurrent sessions on a single server, which again blows away the cluster controller/multiplexer scenario," he

The network also includes two IP routers one of which provides access to the Internet and the other a T-1 link to the NIH's division of computer research and technology.

Not bad for an organization that sprung from such humble beginnings. It doesn't stop there, either. The network has provided "nearly immeasurable" savings for NIDA/ IRP. Consider:

Over \$310,000 in contract costs annually, which does not include savings based on inherent telecommunications support.

A reduction in IS staff from 12 to 4 while services have grown, which equates to a savings of nearly \$300,000 annually in staff costs.

A comfortable and stable Irma environment for more than 340 Windows and Macintosh users, which relates to nearly \$70,000 a year in telecommunications equipment savings.

"That's instead of leasing all this wonderful cluster controller equipment, and going out and purchasing all these wonderful Irma cards and installing those," Affeldt says. "And that does not include the man-effort that would be necessary for managing all of those Irma cards.'



AFFELDT

Other benefits include institutionwide access for Oracle database applications, including the NIDA/IRP Pharmacy database, which provides instant access to information on drugs administered to patients. The speed with which the network provides this information helps maintain the highest levels of safety and inventory tracking.

The network also allows NIDA/IRP to electronically balance its budget and support a Requisition System that allows complete tracking of procurements from creation through all approvals and eventual award.

The benefits of networking to NIDA/IRP can be put in terms of dollars, man-hours, expanded research areas, reliability and even potential life savings by providing online, real-time medical databases on study participants.

BY JIM DUFFY

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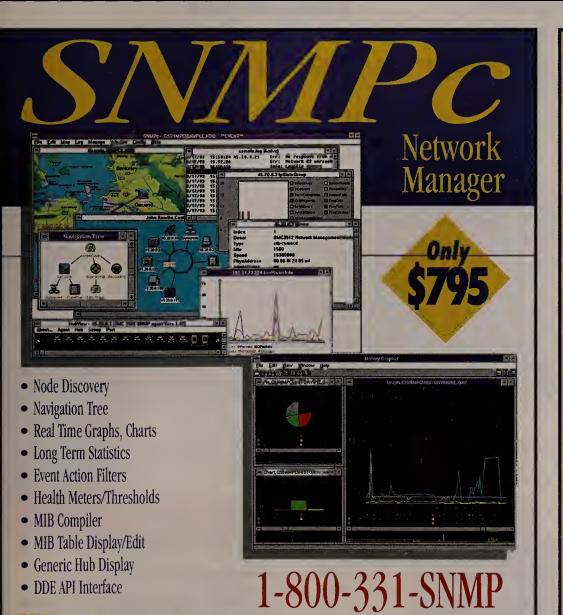
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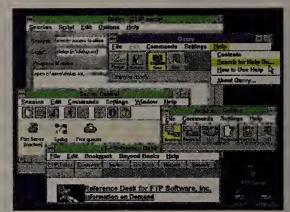
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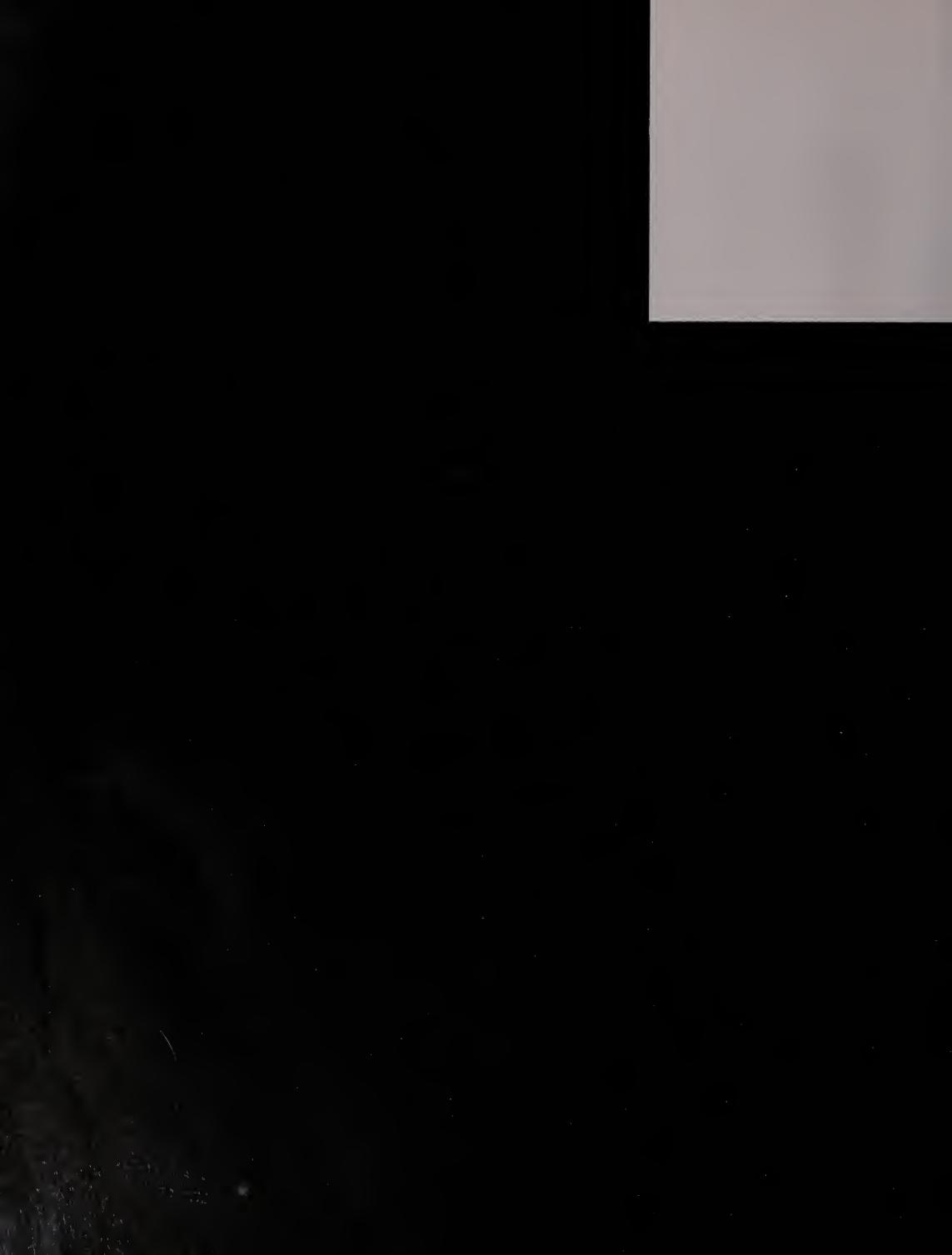
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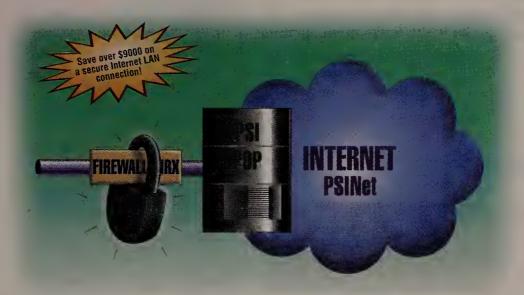
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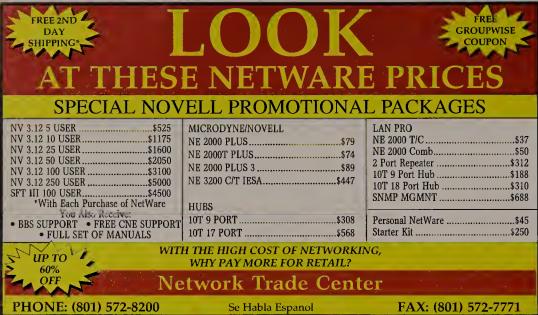
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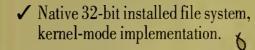
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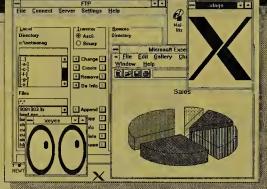
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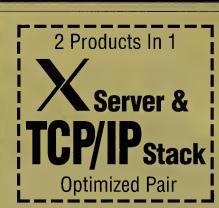
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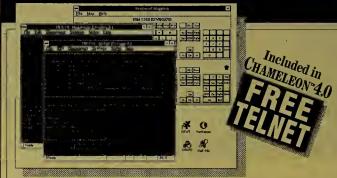




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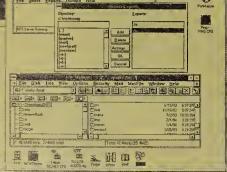
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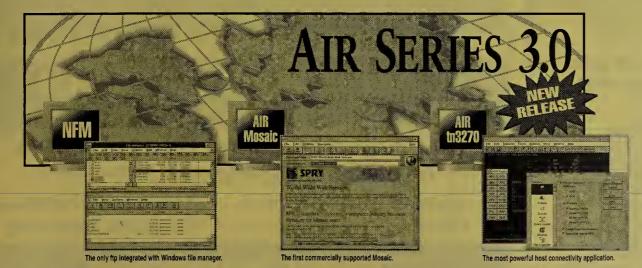
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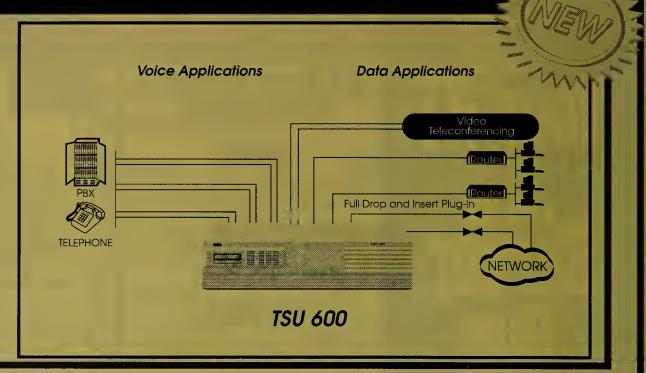
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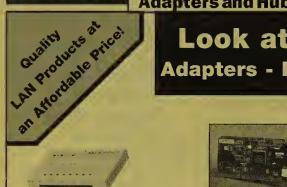
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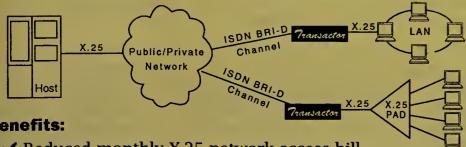


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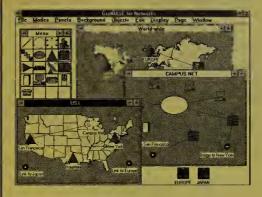


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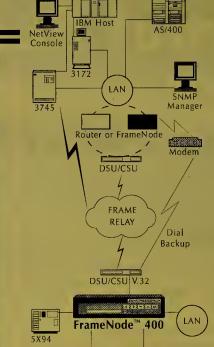
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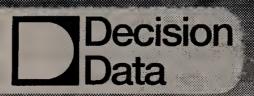
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'95 Forecast Technology, Planning Guide, Network World 200 Year in Review, Short List Guide

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Continued from page 1

replacing them with AT&T frame relay service and TCP/IP-based Ethernet LANs. The conversion was complete by the end of September.

"We are seeing substantial cost savings and will have paid for everything we did by December," said David Ellis, director of network services for the firm. "And that includes the capital we laid out for removing our existing system."

The key to the move was the integration of the firm's separate voice and data nets via Hypercom, Inc.'s Integrated Enterprise Network (IEN) routers.

The routers let the firm connect its 319 stores and 19 distribution centers with corporate headquarters here in a fashion that saved thousands of dollars, improved response times by 50% and enabled the firm to move headlong into the client/server world.

"We eliminated the parallel networks and their associated costs, and improved network performance while laying the foundation that will enable rapid rollouts of additional remote sites in the future," Ellis said. "We needed the ability to cost-effectively support rapid business growth to better compete in a highly competitive marketplace."

Response times over the frame relay net have been reduced to less than 2 seconds in most cases, Ellis said, down from 14 to 17 seconds. And file transfers are now performed five times faster than before.

Home Depot plans to extend the network to 12 new stores by January and have a total of more than 800 stores on-line by 1998. In two years, the company expects to grow from 2,000 network-attached devices to more than 20,000.

DISTRIBUTED SETUP

In the new environment, every Home Depot store has a Hewlett-Packard Co. Unix-based server that supports local TCP/IP data traffic, plus OS/2-based point-of-sale terminals on the store floor and a PBX for

The HP machines run a client/server-based In Store Processing (ISP) system based on Informix Software, Inc. databases.

The ISP lets individual Home Depot stores do their own purchasing, receiving, labor scheduling and inventory management — a shift from the more centralized, less flexible system of the past.

store over the T-1 access line. **Building a better net** Credit Atlanta headquarters authorization **IBM** host mainframe Store Frame relay 16K-64K Unix server Tandem = bit/sec PC DG server NetWare = SDLC Hypercom IEN 3000 devices are key to the cost savings Home Depot is realizing with its revamped net, which will also support the company's rapid expansion More than 300 stores across the U.S. and Canada and distributed computing strategy. GRAPHIC BY SUSAN SLATER

"In business terms, each store is a distributed entity tasked with keeping close ties to its community," Ellis said. "So each store has the ability to track sales and order merchandise locally within the store."

The HP servers connect with an IBM mainframe at Home Depot headquarters. The mainframe acts as a central data warehouse for storage and historical data,

KEYS to MOVE

- Keep installation of devices at remote locations as simple as possible.
- Centrally manage remote systems.
- Pilot new devices and configurations before sending them into the field.
- Be aware that applications will behave differently in a frame relay environment and plan accordingly.
- Estimate how much bandwidth applications will eat out of frame relay CIR.

among other things.

The Informix products will also help Home Depot implement a nationwide bridal registry and credit card authorization application.

Home Depot does most of its own application development, so most of its legacy applications have

been ported to the Unix environment.

Certain applications, like the company's financial ledger, still use Systems Network Architecture protocols and will remain on the mainframe. Others, like a merchandising application that runs on a Xodiacbased Data General Corp. minicomputer, will be ported to the Unix servers in early 1995, Ellis said.

NET CONSOLIDATION

Access to the mainframe is provided via AT&T's InterSpan frame relay service at speeds from 16K to 64K bit/sec, depending on the needs of each store.

"We ean now increase or decrease bandwidth on demand from any store and bring up new sites very quickly," Ellis said.

In addition, a single Synchronous Data Link Control line connects every Home Depot with an outside credit card authorization firm.

For voice, each store has a link to an AT&T virtual private network.

A single Hypercom IEN router — which supports TCP/IP routing, SDLC, a frame relay packet assembler/disassembler, a dial backup modem, a multiplexer for voice traffic and a data service unit/channel service unit — handles the myriad WAN links for each

> "We would have had to buy all of those capabilities separately from multiple vendors if we tried to put this together without the Hypercom box," Ellis said. "That's not what we wanted."

> The firm evaluated almost all major router vendor products, but it came down to Hypercom and Cisco Systems, Inc.

''We told all of the vendors that because of our aggressive rollout needed these integrated functions now - not in some promised future release," Ellis said. "We can't operate on promises, and Hypercom ended up being the only vendor who could deliver."

The distributed computing strategy has also delivered. "Many users believe they'll be driving blind if they eliminate all of their legacy equipment and applications, but they should know that they can be weaned from it and survive," Ellis said.

Senior Writer Barb Cole contributed to this article.

Continued from page 1

(MIF) files, an ASCII text file describing a product's manageable attributes, Barth said.

However, Microsoft will not support the DMTF's Component Interface (CI), which delivers GET and SET commands from the Management Interface to managed objects within a workstation, and passes status information back to the Management Inter-

"We're incorporating the Management Interface in Windows 95 so you can remotely manage Windows 95 with DMTF-compliant applications," Barth said. "But we don't think people should have to rewrite their [Windows 95] drivers so they have an additional driver. So rather than force you to write to CI, we're going to go ahead and use [Windows 95 drivers] to get the same information."

Barth added that Systems Management Server, which performs software distribution and license management on Windows and Windows NT systems, adheres to DMTF interfaces.

DISCOURAGED VENDORS

Other DMTF steering committee vendors at last week's Enterprise Management Summit '94 conference here were discouraged about Microsoft's strategy.

"Microsoft seems to be backing away from their commitment to this, said Bill Warner, vice president for enterprise management in IBM's networking software division. "That's bad news. Now you've got a problem."

Nor were users heartened by Microsoft's plans.

"If you can get the MIF information out in some way or another, users will be fairly happy, "said Ki Wilson, senior microcomputer analyst at Stone Container Corp. in Chicago. "But as a user, I would like to see all vendors comply with standards to make sure that we can operate consistently. If this were to segment the market between two means of getting information out, then Microsoft would be doing a disservice to the whole project of making desktops more manageable."

"It's a little unnerving to hear that a vendor of the size and clout of Microsoft is taking their own approach to managing components," said Richard Roller, director of information systems at the Guggenheim Art Museum in New York. "The goal of standards is that they're universally adopted. When they're not, you could end up with problems or fragmentation of vendors focusing on too many APIs to write to."

The DMTF will address the Microsoft issue at a meeting in December. In addition, the group will determine guidelines for full-DMTF compliance at that same meeting, according to Gray-Voigt. 🗷

Sybase

Continued from page 1

customers in that about half of them are already Sybase users. Sybase customers reacted positively, as well, noting that Sybase lacked a strong client/ server application development tool

offering, despite the firm's acquisition last year of tool vendor Gain Technology, Inc.

However, Powersoft users not in the Sybase fold said the acquisition could damage Powersoft efforts to tightly link its tools to databases from Oracle Corp., Informix Software, Inc. and others.

'Anyone who thinks that this won't

The impact on Oracle

The union of Powersoft Corp. and Sybase, Inc. will force rival Oracle Corp. to shore up its tools strategy, according to industry watchers.

"This puts a lot of pressure on Oracle, because PowerBuilder has incredible mind-share and market visibility," said Judy Davis, an analyst at Patricia Seybold Group, Inc. in Cambridge, Mass.

Oracle's tool offerings have centered around its Cooperative Development Environment (CDE), a suite of application development and computer-aided software engineering tools for large-scale development.

CDE has been a disappointment at the departmental level - where Powersoft is strongest - because of CDE's poor Windows support, pricey run-time fees and high memory demands, according to Marshall Senk, an analyst at San Franciscobased investment firm Robertson Stephens & Co.

Oracle said it plans to address

these shortcomings in CDE2, due in the first quarter of 1995.

"We view this [acquisition] as positive for Oracle and suspect that many Oracle/Powersoft shops will switch to CDE," said Dennis Moore, Oracle's senior director of product marketing. Oracle will offer utilities, services and aggressive pricing to entice PowerBuilder users to move to Oracle's tools, he said.

Oracle is also building a development tool — code-named Project X that is being positioned between Microsoft Corp.'s Visual Basic and PowerBuilder.

But even if Project X is widely accepted when it rolls out in mid-1995, Oracle still needs to address the departmental client/server tool area, analysts said. Oracle may need to take another look at SQLWindows from Gupta Corp., which almost became a part of Oracle in a thwarted acquisition attempt last August.

BY BARB COLE

On-line

Continued from page 1

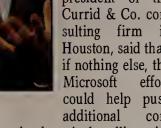
Windows, while back-end services will be provided by Windows NT servers.

Gates promised extensive consumer-oriented content, although he declined to mention any specific providers. He said pricing would be competitive with that of existing consumer-oriented networks, such as America Online, Inc., which generally charges base

prices of around \$10 a month.

Microsoft working with Visa International, Inc. to design a system for secure transactions over the network.

Cheryl Currid, president of the Currid & Co. consulting firm in Houston, said that, if nothing else, the Microsoft effort could help push con-



sumers on-line — thanks to its bundling with Windows. That, in turn, could spur overall interest in on-line services.

"Out of this, we'll see new fervor in the online business," Currid said. She questioned, however, whether or not Microsoft has the online and telecommunications smarts to take over the market.

"How many years have they bundled Terminal with Windows?" she asked, referring to the feature-poor telecommunications application that now comes bundled with the operat-

AT&T AND LOTUS

Meanwhile, AT&T and Lotus used Comdex to announce the names of companies now actually using AT&T Network Notes.

Individual, Inc., a Cambridge, Mass., vendor of news services; Compaq Computer Corp.; First Albany Corp.; and 3M all use the service to pilot information distribution services for existing customers.

AT&T and Lotus said a full-fledged network one to which end users can dial in and browse services from a variety of content providers — will likely roll out in mid-1995, along with the release of Notes Version 4.0.

With AT&T's help, Lotus is making several changes to the Notes server to make it more viable as a platform for a large network with potentially several thousand concurrent users.

Key among these changes: modifications to Notes' security technology so user logons can be linked to security domains, rather than to

This will allow Network Notes providers to store information on several servers at once to handle anticipated heavy loads.

At the same time, Lotus will release a lowcost Notes client designed for use on the network. Larry Moore, a Lotus vice president, said this client will be different from the existing \$149 Notes Express client, but declined to

Moore said the companies are looking at

ways to integrate electronic data interchange with the service — currently, users would have to develop links themselves.

According to Jeffrey Feldman, marketing vice president of business multimedia services for AT&T, the carrier is looking at ways to provide credit card services over the network.

Despite Network Notes' business empha-

sis, Moore predicted that some companies will eventually employ it to reach the consumer

Network Notes is initially running on a series of OS/2 Notes servers at an AT&T site in New Jersey. Moore and Feldman said the servers will later be migrated to higher end Unix platforms. **Z**

AT&T Notes management by E-mail

Call it management by electronic mail.

AT&T and Lotus Development Corp. officials last week said users of their new AT&T Network Notes service will be able to administer their databases and conferences via E-mail forms. Lotus Notes relies on server-based access control lists to determine who has access to particular Notes databases.

To deal with this feature in a public network, AT&T and Lotus have developed a series of Notes macros that let customers fill out simple forms when they want to give new customers access to their data. They then send these forms via Notes E-mail to a central address, where an AT&T Notes server will make the appropriate changes in the access control list.

INTERACTING ON-LINE

In addition to news about Network Notes, AT&T last week announced a new business unit to deliver interactive on-line services.

The company's new Consumer Interactive Services unit will be headed by AT&T Easy-Link executive Gordon Bridge. Included are the company's recently launched, intelligent agent-based PersonaLink service and the ImagiNation Network, which AT&T took control of last week, buying the 80% of ImagiNation Networks it did not already own.

The platform for services from the new business unit will be the Packet Transaction Network (PTN) 2, a successor to the network AT&T acquired from Western Union Corp. in 1990 that transports AT&T's EasyLink E-mail, fax and electronic data interchange services.

PTN 2 evolved from Western Union's 1,200- and 2,400 bit/sec X.25 packet network into a scalable private-line TCP/IP backbone, which supports speeds from 56K bit/sec up to T-3 and supports 14.4K bit/sec local dial access, said Dennis Blahut, core services director at AT&T EasyLink.

BY ADAM GAFFIN AND JOANIE WEXLER

result in tighter, preferential integration between Sybase and Powersoft products is sniffing pixie dust," said Dan Fox, a senior program analyst working with consultancy ANSTEC, Inc. in Washington, D.C., which uses PowerBuilder to connect Windows clients to Oracle databases at NASA's Goddard Space Flight Center.

Another user cited similar concerns.

''They're already slanted toward Sybase, and I don't want to see it get any worse," said Joe Pearson, owner of JDP Computer Services in Boise, Idaho.

The firm builds client/server applications for the state of Idaho and other customers, using PowerBuilder and a variety of back-end databases from Sybase, Oracle and Informix.

Powersoft Founder and Chief Executive Officer Mitchell Kertzman, who will gain a seat on the Sybase board of directors, said his company will operate as an independent subsidiary of Sybase and will continue to provide access tools for other vendors' databases. Database independence is vital for Powersoft because 50% of its customers use databases other than those from Sybase, he said.

SYBASE USERS HAPPY

The Powersoft acquisition is designed to fill a void in Sybase's product portfolio that the company failed to fill through previous acquisitions. Gain provided Sybase with a strong offering in the multimedia niche. However, Sybase was unsuccessful at launching Build Momentum, a more mainstream application development tool designed to compete with products such as PowerBuilder.

Skip Glass, Sybase's vice president of

product and platform marketing, said "it's highly unlikely" that the company will continue development of the long-overdue Build Momentum.

However, certain Build Momentum features, such as its support for multithreaded applications, could wind up in future versions of PowerBuilder.

According to Glass, Sybase will continue development of Enterprise Momentum, which the company describes as a high-end repository for large-scale applications.

Glass declined to comment on just how PowerBuilder would work with Enterprise Momentum.

Hoffman

Company

(in millions)

Employees

Chairman

Primary

products

Based

12-month revenue

GRAPHIC BY TERRI MITCHELL

Software sweethearts

Company

(in millions)

Employees

Chairman

products

12-month revenue

Powersoft

\$113

725

Mitchell

Kertzman

Application

Emeryville,

development tools

Calif.

Sybase

\$617

3,700

Mark

Based Concord, Mass.

Kertzman

databases

"We're very excited about this because now [Sybase] has all the pieces," said Corey Isaacson, president of CompuFlex International, a systems integrator in Woodland

Isaacson added that the merger guarantees that PowerBuilder will more fully exploit Sybase's application program interface technology.

"Sybase has the best application communication protocol layer in Open Client, but no front-end tools [including Power-Builder | are supporting all its advanced capabilities," he said.

Analysts said the purchase is a smart — albeit pricey — move for Sybase. But they said both companies still have several marketing and technical challenges in the

Sybase has come under fire in the last year for poor parallel processing support, while Power-Builder has been criticized for being bug-ridden and unable to support large-scale applications.

"PowerBuilder is certainly the premier client/server tool on the market. However, [Powersoft] still needs to prove that this tool can scale up through the enterprise," said Judy Davis, an analyst at Patricia Seybold Group, Inc. in Cambridge, Mass.

She was skeptical as to whether Sybase — which has itself had scalability problems - could drive PowerBuilder into a more robust offering.

CHALLENGES AHEAD

NETWORK WORLD



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Back to Reality

ISDN sellers missing magic formula; Novell forgets truth in advertising.

BY DAVID J. BUERGER

our historical expertise and write about why a particular thing is still screwed up.

This month marks the second anniversary of National ISDN, but since we are so close to Christmas, I went to Comdex last week vowing to find something positive to say about this well-bruised technology.

The chief flack for ISDN is the Corporation for Open Systems International (COS), which prepared for Comdex-goers with a 37-vendor showcase and a snazzy booklet called ISDN Solutions. Contact Pearle Merriner at (703) 205-2767 to order

The Transcontinental ISDN Project 1992 debut was a flop because National ISDN was then virtually unavailable, especially west of the Mississippi. Little had changed by last November; only a sliver of the estimated 200,000 installed

ISDN lines conformed to this standard, which was aimed at making ISDN from different service providers interoperate.

This number was a spit in the ocean of 110 million telephone lines in the U.S. About 47% of these were "ISDN-capable," hardly anyone was buying it.

COS members took stock of the situation late last year and "decided to challenge ourselves to get ISDN going," according to Don Auble, director of narrowband products at Ameritech and vice chairman of the ISDN Executive Counsel. The objective was to provide ISDN at low prices and make it simpler to buy.

According to Auble, availability has

improved. "Now we're ready for prime time," he said.

COS' booklet lists 229 metropolitan statistical areas (MSA) where ISDN has a "presence." COS says 118 of these have 90% National ISDN availability. (An MSA is a unit of urban measurement defined by the U.S. Office of Management and Budget.)

I checked the list and noticed that New York is in the non-90% category. Since there are many areas of Manhattan where you cannot yet buy ISDN, I wonder how much we can believe the term 'presence."

More telling is COS' admission of only 300,000 ISDN lines now in service. That's 100,000 more than last year, but it's still a spit in the ocean, albeit a bigger

> The big question is, if ISDN is so available, why aren't more people buying it? COS said that by the end of 1994 (that's in six weeks), 51 million Amer-

> icans will work at home a significant amount of the time — that's 40% of the work force.

Of course, if anyone can miss a market that big, it's the Baby Bells. My guess is that ISDN is still too difficult to buy.

According to Intel Corp.'s Andy Grove, it takes an average of 12 days to buy ISDN. That's assuming you can find someone who knows how to take an order.

Installation fees range from \$70 to \$580, while monthly rates range from \$24 to \$200. Lucky users in Denver get to pay the high-end rates.

As put by an Intel Pro-Share sales manager, "The odds of getting ISDN are slightly better than going down to the local slot machine."

So much for a positive attitude.

Telling the truth

A cynic once said that news is something someone somewhere doesn't want you to print — the rest is advertising.

Novell, Inc. decided that nasty journalists were holding back the news, so last week it bought a two-page ad in *The* Wall Street Journal touting NetWare 4 as "the perfect network for people who'd rather buy a product today than a promise tomorrow.'

The ad's nub was a chart listing seven network services: directory, integrated messaging, multiprotocol routing, network management, security, file and

Naturally, Novell said NetWare 4 provides all seven services, while Microsoft NT Server 3.5 and IBM LAN Server 4.0 only have file and print.

Oops! Guess Novell forgot about Banyan Systems, Inc.'s 10-year-old VINES. Banyan - which, according to Dataquest, Inc., holds about half of the market share for network operating systems that support 50 or more users — said it

provides all those services in addition to one that Novell didn't list: support for all seven services across all three competitors' networks.

Novell will eventually figure out ways to sell Net-Ware 4 to the big boys, but rigged advertising isn't one of them.

And who said trade pubs only reprint press releases?

Go for jolt

That darling of the technical crowd, the Internet Engineering Task Force, is dandying up its image with a new logo.

The IETF is sponsoring a contest for the best design. The prize: a six-pack of Jolt cola and a bunch of T-shirts. Send your idea to logo@cnri.reston.va.us by midnight, Dec. 2.

One guy's suggestion followed the time-honored tradition of writing code by stealing someone else's. He proposed altering the National Union of Computer Operatives' (NUCO) emblem, which itself was lifted from a World War II Soviet propaganda poster.

He also suggested altering NUCO's motto, "Power comes from the barrel of a GNU," to "No standardization without implementation." That gets my Jolt.

→ Buerger is an industry consultant and contributing editor to Network World. He can be reached at dbuerger@pipeline.com.

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IBM, Apple and Motorola make for a powerful team. What role do you foresee clients and servers, based on their PowerPC processors, playing in your net?

◆ ''None. IBM can't decide between PowerPC, OS/2 and AIX, while Apple is stuck in its own world. Although the product is technically good, the marketing doesn't show a solid foundation for future growth."

Lt. Col. Raymond Tyc, U.S. Air Force Logistics Management Agency, Gunter Annex, Ala.

"We really see that new platform as a viable service engine to provide different services to our network users. We're looking at getting to understand it better. We think it's going to play a big role in what we do as a company and also what our clients are going to be doing."

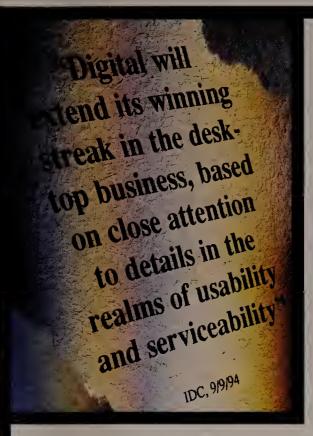
Jim Cimino, manager of network engineering, WordPro's, Inc., New York

◆ "If [PowerPC clients and servers] were available today, I would fight like a tiger to adopt that computer platform as our company standard. Specifying a PC purchase today makes as much sense as ordering a Model T car, except that PCs are still made."

Paul White, advertising manager, Story House Corp., Charlotteville, N.Y.

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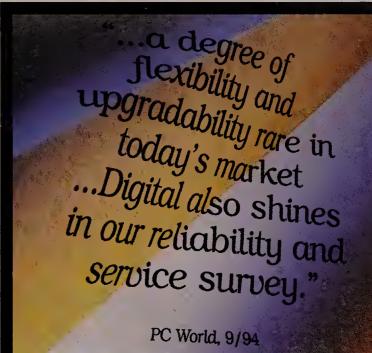


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